THE

MEDICO-CHIRURGICAL

REVIEW,

AND

JOURNAL

OF

PRACTICAL MEDICINE.

(*NEW SERIES.*)

VOLUME FORTY,

[1st of OCTOBER, 1843, to 31st of MARCH,]

1844.

VOL. XX. of DECENNIAL SERIES.

EDITED

BY JAMES JOHNSON, M.D.

PHYSICIAN EXTRAORDINARY TO THE LATE KING,

AND OTHERS.

LONDON:
PUBLISHED BY S. HIGHLEY.

NEW-YORK:
RE-PUBLISHED BY R. & G. S. WOOD,
No. 261 PEARL-STREET.
1844.

H. LUDWIG, PRINTER,
70 & 72, Vesey-street.

INDEX.

A.

Abscess in Schneiderian membrane . 564
Absence of the rectum 541
Acardiac fœtuses, circulat. of blood in, 517
Acceleration of puberty in the female, 463
Accessory nerve, functions of the . . 504
Aconitine in facial neuralgia . . . 548
Action of medicines 181
Addison on pneumonia 241
Addison on pneumonia 464
Adventitious structures, Hodgkin on, 378
Age, Beau on the diseases of . . . 491
Age for females to marry 516
Air, Detmold on highly condensed . 276
Alcohol and ether, action of 181
Aldridge on chyle 522
Aldridge on urinary diseases . . . 528
Aliments 410
Amaurosis 349
Amenorrhœa, on the cause of . . . 208
Ammonia in scarlatina, Rieken on . 454
Amniotic fluid, asphyxia produced by, 514
Anæmia 303
Analogy between monstrosities . . . 507
Anatomy, formative and structural . 1
Anatomy of the Chinese 505
Anatomy, philosophical 507
Andral on pathological hæmatology . 469
Anecdote, medical 239
Aneurysm of the umbilical cord . . 538
Angina, epizootic gangrenous . . . 235
Animal physiology, Carpenter's . . 1
Animal kingdom, development of the, 11
Animal heat 401
Ankylosis, diagnosis of true and false, 261
Anodyne pommade 515
Anterior chamber of eye 556
Antimony in injuries and ophthalmia, 512
Anti-scrofulous syrup 516
Apothecaries' diploma in Paris . . . 575
Arch-tourniquet 263
Arsenic, hydrated peroxide of iron in poisoning by 280
Arteries, fatty degeneration of the . 39
Artificial pupil, operation for . . . 348
Asphyxia 229
Asphyxia from amniotic fluid . . . 514
Atlee on extirpation of ovarian cysts, 258
Auscultation, obstetrical, Arsdale's . 269
Auscultation, clearness of sounds of . 537
Axilla, medication by the 237

B.

Bagneres de Bigorre 54
Ballingall on naval & military schools, 355
Barbadoes leg 509
Barreges 57
Battley on yellow bark 277
Beau on the diseases of old age . . 491
Beck on opium in infants 545
Becquerel's semiology of the urine . . 185
Bed-sores, nitrate of silver for . . . 267
Bell on an epidemic at Teheran . . 383
Bell on naval and military surgery . 443
Bennett on parasitic veget. structures, 456
Bennett on inflam. of nervous centres, 459
Benzoin water 578
Bethlem Webster's statistics of . . 364
Bichat, statue to 239
Bichromate of potass, poisoning by . 551
Bird on fatty urine 276
Bird's natural philosophy 391
Bischoff on fecundation 206
Bisulphuret of carbon 240
Blood, compression of, Robinson on . 38
Blood, alterations of the 147
Blood and urine of Clorotic subjects . 179
Blood, determination of 307
Blood, microscopic entozoa in the . . 478
Blood, Donné on the 499
Blood, circulat. of, in acardiac fœtuses 517
Blood, oxides of protein in 520
Blood in anterior chamber 556
Bloxam's case of ulcer. of int. jugular 42
Bone, Simon on diseases of 87
Bones, morbid structures of . . . 94
Bony texture, diseases of the . . . 92
Boudet on phthisis 217
Bouisson on dislocations 410
Bowels of the horse, verm. tumours in, 236
Bowman's physiological anatomy . . 1
Breast, cancer of the 122
Brodie on foreign bodies in bronchus . 372
Brodie on surgical practice 564
Bronchial calculus, Tice's case of . . 34
Bronchocele, treatment of 121
Buel on a peculiar form of paralysis . 534
Burns, treatment of, by sod. carb . . 556
Burton on the statistics of fever . . . 531

C.

Cabanis, works of 494
Cæcum, protrusion of, on the left side 262
Calculi in St. George's, Jones on the, 39
Calculi, new instrument for crushing, 576
Calomel in typhoid fever 234
Caloric, Metcalf on 391
Caloric, the source of motion . . . 398
Caloric, its identity with electricity . 399
Caloric, its influence on digestion . . 403
Caloric, its influence on nutrition . 404
Caloric, production of sleep by . . . 411
Caloric, its influence on spasmodic dis. 413
Caloric, its influence on inflammation, 414
Cancer, cell-formation of 28
Cancer, Tuson on the treatment of . 547
Cancerous diseases, frequency of . . 213
Cancrum oris, Dr. Hunt on . . . 44
Cannabis Indica, Clendinning on the 376
Capbern, waters of 57

Carbon, bisulphuret of - - - - 240
Caries of the os calcis - - 263
Carotids, compres. of in hydrophobia 265
Carpenter's animal physiology - - 1
Cartilage, development of - - 27
Catamenia, influence of opium on the, 545
Cataract, Scott on - - 190
Cataract knife, description of Scott's, 190
Catarrh, Watson on - - - 166
Cattle, Dumas on the fattening of - 230
Cauterets, waters of - - - 58
Cayol on the vis medicatrix naturæ - 218
Cell-formation, doctrine of - - 1
Cells, Williams on the pathology of - 246
Ceratum saponis, Houlton on - 279
Cerebral softening, nature of - - 459
Cerebral softening, colour of - - 461
Cerebral softening, connexion between hæmorrhage, and - - - - - 462
Chadwick's sanatary report - - 415
Chancre, tanning a - - - 548
Chapman on phlebitis - - - 259
Chaps, pommade for - - - 515
Charter of Veterinary College - 579
Chemical analysis, Fresenius on - 179
Chemical pathology - - - 480
Chemistry, Kane's elements of - - 185
Chervin, death of - - - - 195
Chinese, anatomy of the - - 505
Chlorotic subjects, blood and urine of, 179
Chloruretted lotions in variola - - 513
Churchill on dis. of uterine appendages 270
Chyle, composition of - - - 24
Chyle, Aldridge on - - - - 522
Civil government, Foltz on - - 283
Classical illustrations of diseases - 203
Clayton on hysterical affection of voice, 42
Climate, influence of - - - 405
Climate of France, variations in the - 497
Climate of Canada, Orton on the - 546
Clinical medicine, Graves' - - 163
Cochineal in hooping-cough - - 552
Colostrum, constitution of the - 503
Comparative anatomy, Owen on - 1
Complicated menstruat. Detmold on 536
Compression of the blood, Robinson on, 38
Compression for urethral pains - - 514
Confectio ferri composita - - 553
Congenital luxations, Gerdy on - - 512
Congestion - - - - - - 305
Congestive pneumonia, Erichsen on, 36
Conjunctiva, strumous inflam. of the, 114
Cooper on lithotomy - - - 241
Copaiba lozenges - - - - 515
Cornea, opacities of the - - 347
Corpora lutea, Raciborski on the - 486
Critical age in women, Raciborski on, 211
Croton oil, inoculation of, for nævus, 512
Crowfoot's case of ulcer. of pul. artery, 45
Cryptogamic plants in sputa of phthisis, 457
Cryptogam. plants in skin of gold fish, 457
Curling on diseases of the testis - 313
Cutaneous diseases, memoranda on - 237

D.

Dalrymple on ossific. of encysted tum. 372
Dartos, muscularity of the - - 314
Dauverger on varus mentagra - . 265
Decomposition of phosphatic calculi, 191
Delirium, musk in - - - - 511
Detmold on complicated menstruation, 536
Detmold on highly-condensed air - 276
Dickson, Dr. on trees & shrubs for cem. 579
Digestion, influence of caloric on - 403
Dislocation of the 4th thoracic cartilage, 440
Dislocation, sub-acromial, of humerus, 441
Dislocation forwards of up. end of ulna, 442
Dislocation directly backw. of femur, 442
Dog, rabies in the - - - 515
Doherty on impending dissolution . 533
Donné on micros. examination of fluids, 498
Dover's powder, poisoning by - 550
Dropsy, Watson on - - - - 163
Dropsy, treatment of - - - 310
Dropsy of the uterus - - - 487
Dumas on the fattening of cattle - 230
Duvergie on infanticide - - - 227
Dying, different modes of - - 149

E.

Ear, Toynbee on the pathology of the, 369
Eaux-bonnes and Eaux-chaudes - 59
Eczema, Johnson on - - - 254
Egypt, medical school in - - - 496
Electricity in poisoning by laudanum, 544
Electro-puncture in hydrocele - - 260
Elephantiasis, case of - - - 509
Elephantiasis, tubercular, Kinnis on, 530
Emengard's nosologie clinique - - 496
Empyema of necessity, pulsating - 540
Encysted hydrocele, Liston on - - 361
Encysted tumours, Dalrymple on - 372
Entozoa in the blood and stomach - 478
Entozoa, intestinal, during digestion, 479
Epidemic mortality in England - 61
Epidemic at Teheran, Bell on an . 383
Epilepsy, simulation of - - - 84
Epistaxis, cure of - - - - 268
Epithelium-cells of the intestines - 236
Epizootic gangrenous angina . - 235
Erectile tumour in the popliteal space, 43
Erichsen on congestive pneumonia - 36
Eruptive fevers, Gregory on the - 60
Excision of the uterus - - - 257
Exercise, influence of, on respiration, 409
Exophthalmia from hydatid in the orbit, 478
Exostosis - - - - - - 91
Extirpation of the sup. maxilla, case of, 249
Extirpation of ovarian cysts, Key on, 250
Extirpation of ovar. cysts, Walne on, 258
Extirpation of ovar. cysts, Atlee on - 258
Extirpation of ovarian tumours, - 557
Eye, Hall on diseases of the - - 111
Eye, malignant diseases of the - 119
Eye, periodic affections of the - - 228
Eyebrows and eyelashes, loss of - 573

F.
Face and head, tic douloureux of the 236
Face, contraction of the muscles of 562
Facial neuralgia, acontine in - 518
Fæculent discharge at the umbilicus, King on - - - - - - 245
Fattening of cattle, Dumas on the 231
Fatty degeneration of arteries, Gulliver 39
Fatty urine, Dr. Bird on - - 276
Feigned diseases, Gavin on - - 69
Female, Mercier on gonorrhœa in the 451
Femur, dislocation of, on dorsum ilii 264
Fever, theory of - - - - - 413
Fever, Burton on the statistics of - 531
Field on veterinary surgery - - 125
Fife on caries of the os calcis - 263
Fissured palate, operation for - 262
Fissures of the toes, pommade for 515
Fistula in ano - - - - - 120
Fluids, microscopic examinations of 499
Fœcundation, Bischoff on - - 206
Fœcundation in mammiferous animals 223
Foltz's medical statistics - - 281
Foltz on civil government - - 283
Foreign bodies in bronchus, Brodie on 372
Forensic medicine, Guy's - - 183
Fracture of the base of the skull - 508
France, on the use of ptisans in - 481
France, variations in the climate of 497
Fresenius on chemical analysis - 179
Frogley on osteosarcoma of the thigh 44
G.
Galen on the hand - - - 453
Geography, medical - - - 235
Gerdy on congenital luxations - 512
German hydropathic journal - 514
Glanders - - - - - - 128
Gonorrhœa in the female, Mercier on 451
Gout, Graves on - - - 171
Gouty ramollissement of spinal cord 173
Graves' clinical medicine - - 143
Gregory on the eruptive fevers - 60
Gun-shot wounds - - - - - 437
Guthrie on the urinary organs - 183
Guy's forensic medicine - - 183
Guy's hospital reports - - - 241
H.
Hæmatology, pathological, Andral on 469
Hæmorrhage, proximate cause of - 237
Hæmorrhage, Watson on - - 162
Hæmospasic treatment - - 231
Halford, Sir Henry - - - 580
Hall on diseases of the eye - - 111
Hall on lateral curvature - - 556
Halpin on puerperal convulsions - 271
Hand, Galen on the - - - 453
Harris on puerperal convulsions - 268
Health and disease, Reveillé-Parise on 197
Health, influence of manufactures on 462
Healthy and diseased bone, Simon on 87
Heart, Pigeaux on diseases of the 490
Heat and cold, effects of - - 150
Hermaphroditism, Knox on - - 523
Hoarseness - - - - - - 175
Hodgkin on adventitious structures 378
Holland on mechanical disease of lungs 452
Hooping cough, cochineal in - 552
Horse, hepatic disease in the - 135
Horse, intestinal diseases in the - 136
Horse, cerebral diseases in the - 139
Horse, urinary diseases in the - 141
Horse, verminous tumours in the - 236
Horses, influenza among - - 133
Hoskins on decomposition of phosphatic calculi - - - 191
Houlton on ceratum saponis - - 279
Houston on acardiac fœtuses - 517
Humoralism, King on - - - 525
Hunt on cancrum oris - - - 44
Hydatid in orbit, exophthalmia from 478
Hydatids, transmission of, by contagion 473
Hydatids, false or spurious - - 473
Hydatids, polycephalus - - 473
Hydatids, ætiology of - - - 475
Hydrocele, electro-puncture in - 260
Hydrocele, encysted, Liston on - 361
Hydrocele, spermatozoa in the fluid of 362
Hydropathic treatment, death from 577
Hydrophobia, treatment of, by compression of the carotids - - 265
Hyperæmia - - - - - 304
Hypertrophy and atrophy of tissues 144
Hysterical affection of vocal apparatus 42
I & J.
Imprisonment, solitary, with labour 493
Indian medical service - 289, 581
Indian flesh-glove - - - 291
Infantile paralysis - - - 512
Infanticide, Duvergie on - - 227
Infants, nervous affections in - 533
Infants, Beck on opium in - - 545
Infæcundity of females - - 519
Inflammation, Watson on - - 154
Inflammation, theory of - - 414
Inflammation of nervous centres, Bennett on - - - - - - 459
Influenza among horses - - 133
Injections. warm, in stricture - 261
Iron, hydrated peroxide of, in poisoning by arsenic - - - - 280
Insanity, Webster on - - - 364
Insanity, proneness of women to - 365
Insanity, suicidal - - - 366
Insanity, pathological changes in 367
Interments in cities - - - 416
Interments, delay of - - - 423
Intestinal entozoa during digestion 479
Intestines, epithelium-cells of the 236
Intolerance of light, cause of - 345
Invalids, hints to - - - 50
Invertebrate animals, comp. anat. of 1
Johns on puerperal convulsions - 271
Johnson, on ulcers of the legs - 254
Johnson on eczema - - - 254

Jones on the calculi in St. George's 39
Jones on the human ovum . . 272
Jugular ulceration of the . . 42
Jurisprudence, Taylor's medical . 432

K.

Kane's elements of chemistry . 184
Key on extirpation of ovarian cysts 250
Kheesah, the 291
King on a feculent discharge at the umbilicus 245
King on humoralism . . . 525
Kinnis on tubercular elephantiasis 530
Knox on hermaphroditism . . 523

L.

Labouring population, condition of the 415
Lane on matico 278
Lateral curvature of the spine . 221
Lateral curvature, Hall on . . 556
Laudanum, electricity in poisoning by 544
Leeches, preservation of . . 552
Leeches good weather gauges . 575
Legs, ulcers of the, Johnson on . 254
Leprosy in Sardinia . . . 509
Lever on diseases of the uterus . 98
Lever on puerperal convulsions . 251
Liebig's theory of urinary secretion 528
Liston's case of erectile tumour . 43
Liston on encysted hydrocele . 361
Lithotomy, Cooper on . . . 241
Lithotrity, how to perform . . 242
Lombard on typhus fever . . 500
Luke's case of strangulated hernia reduced "en masse" . . . 45
Lungs, Holland on mechanical disease of 452
Luxations, congenital, Gerdy on . 512

M.

Malaria 408
Mammiferous animals, fecundation in 223
Man, Jones on the ovum of . 272
Manufactures, Noble on . . 462
Marriage, remarks on . . . 226
Maschaliatria 237
Matico, Lane on 278
Medical memoranda . . . 229
Medical geography . . . 235
Medical anecdote . . . 239
Medical Statistics, Foltz's . . 281
Medical jurisprudence, Taylor's . 432
Medical education in the United States 570
Medical schools in England & America 572
Medical remuner. in emigrant vessels, 574
Medication by the axilla . . 237
Medicine, Williams' principles of . 292
Medicines, on the action of . . 181
Medico-chirurgical transactions 31, 361
Memoranda on cutaneous diseases 237
Menstruation, Remark on . . 484
Mental faculties, action of medicines on 489
Mercury and quina, new salt of . 550
Metcalfe on caloric . . . 391
Meteorology 543
Metorrhagia, opiates in . . 489
Metropolis, mortality in the . . 543
Microscopic examination of tartar 234
Microscopic examination of fluids 499
Milk, microscopic examination of 503
Minor surgery, Smith's . . . 468
Molluscum 239
Monstrosities, analogy between . 507
Morality versus physiology . . 275
Mortality, quarterly table of . 541
Mucus, microscopic examination of 501
Mulder on the blood . . . 520
Musk on delirium . . . 511

N.

Nævi, inoculation of croton oil in 513
Naphtha in phthisis . . . 267
Naval & military schools, Ballingall on 355
Naval and military surgery, Bell on 443
Natural philosophy, Dr. Bird's . 391
Neuralgia, inoculation of veratria in 510
Neuralgia, nux vomica in . . 510
Nerves, properties of the . . 298
Nervous and sanguiferous systems, reciprocal influence of the . . 229
Nervous centres, Bennett on inflammation of the 459
Nervous affections in infants . 533
New truss 264
Nitrate of silver for bed sores . 267
Nitrate of potass, on large doses of 549
Nosologie clinique, Emengard's . 496

O.

Obstetrical auscultation, Van Arsdale on 269
Ocular inflammation, remedies in . 113
Oculist's vade-mecum, Walker's . 341
Opacities of the cornea . . 347
Ophthalmia, irritable of females . 116
Ophthalmia, purulent . . . 117
Ophthalmia, chronic, treatment of . 342
Ophthalmia, nitrate of silver in . 511
Ophthalmia, antimony in . . 512
Ophthalmic surgery . . . 341
Opiates in metorrhagia . . 489
Opium, influence of, on the catamenia 545
Opium in the infant subject . . 545
Opposition coach 285
Orthopædic controversy in Paris . 201
Orton on the climate of Canada . 546
Os calcis, Fife on caries of the . 263
Osann, last illness of Dr. . . 193
Ossification of encysted tumors, Dalrymple on the 372
Osteitis 92
Osteophyte 91
Osteoporosis 93
Osteosarcoma of thigh, Frogley's cases 44
Ovarian cysts, Key on extirpation of 250
Ovarian cysts, Walne on extirpation of 258
Ovarian cysts, Atlee on extirpation of 258
Ovarian tumours, extirpation of . 557
Owen on comparative anatomy . 1
Ovum of man & mammifera, Jones on 272
Oxydes of protein in the blood . 520

P.
Palate, fissure of, operation for . . 262
Paralysis from disease of cervical medulla 32
Paralysis of infancy 512
Paralysis, peculiar form of, . . 536
Parasitic vegetable structures . . 456
Paris, orthopædic controversy in . 201
Paris, apothecaries' diploma in . . 575
Pathogeny 296
Pathology, application of cell-doctrine in 28
Pathology of cells, Williams on . 246
Pau, Taylor on the climate of . . 49
Penny doctors 292
Periodic affections of the eye . . 228
Pharmaceutical formulæ . . . 515
Philosophical anatomy . . . 507
Phlebitis, Chapman on . . . 259
Phosphatic calculi, on decomp. of . 191
Phthisis, Boudet on 217
Phthisis, naptha in 267
Phthisis, statistics of 464
Physical science, Smee on sources of 391
Physiological anatomy, Todd and Bowman's 1
Physiognomy of Serpents, Schlegel on 385
Physiology, comparative, Owen's . 1
Physiology, animal, Carpenter's . 1
Physiology, morality versus . . 275
Pigeaux on diseases of the heart . 490
Pneumonia, Watson on . . . 167
Pneumonia, Addison on . 241, 464
Pneumonia, remote consequences of 466
Poison, definition of a . . . 432
Poisoning, statistics of . . . 435
Poisoning, by Dover's powder . . 550
Poisoning by bichromate of potass . 551
Polypus uteri, ligature of . . . 553
Pommades 515
Porrigo decalvans, origin of . . 221
Porrigo decalvans, objections to vegetable origin of 538
Potass, sulphate of, Redwood on . 278
Potass, nitrate of, large doses . . 549
Pouchet on fecundation . . . 223
Practice of physic, Watson's . . 143
Precipitated chalk, formula for . 551
Principles of medicine, Williams' . 293
Profits of pharmaceutical chemists · 280
Protein, oxydes of, in the blood . . 520
Provincial schools of pharmacy . . 280
Proximate cause of hæmorrhage . 237
Pterygium 346
Ptisans, on the use of, in France . 481
Puberty, acceleration of, in the female 463
Puerperal convulsions, Lever on . 251
Puerperal convulsions, Harris on . 268
Puerperal convulsions, Halpin on . 270
Puerperal convulsions, Johns on · 271
Pulmonary artery, ulceration of the . 45
Pulsating empyema of necessity . 540
Putrefactive emanations, influence of, on health 417
Pyrenees, on the waters of the . . 49
Q.
Quain's elements of anatomy . . 1
Quarterly table of mortality . . 541
Quina and mercury, new salt of . 550
R.
Rabies, on the cause of . . . 513
Raciborski on amenorrhœa . . 208
Raciborski on the critical age in women 211
Raciborski on the corpora lutea . . 486
Ramollissement and induration . . 145
Ranking on spermatorrhœa . . 266
Rectum, absence of the . . . 541
Redwood on sulphate of potass . . 278
Remak on menstruation . . . 484
Remuneration, med. in emigrant vess. 574
Respiratory and biliary organs, Virey on the 215
Retina, injuries of the . . . 354
Retinitis, acute 350
Retinitis, sympathetic or functional . 351
Retinitis, symptomatic . . . 351
Reveillé-Parise on health and disease 197
Rheumatism, treatment of . . 238
Rieken on ammonia in scarlatina . 454
Rima glottidis closed by warty vegetations 538
Robinson on compression of the blood 38
Royal letter of thanks . . . 240
S.
St. George's, Dr. Jones on calculi in 39
St. George's Hospital, report from 251
St. Thomas's, statistics of fever in 531
Sanatary inquiry report . . . 415
Sardinia, leprosy in 509
Scarlatina, Rieken on ammonia in . 454
Schlegel on physiognomy of serpents . 385
Schneiderian membrane, chronic inflammation of 564
Schneiderian membrane, abscess of 564
Schools, naval and military . . 355
Schools, med. in England & America, 572
Scott on cataract 190
Secretion, process of 25
Secretion, diseases of . . . 300
Secretion, process of 508
Semeiology of the urine, Becquerel's 185
Serpents, Schlegel on physiognomy of 385
Simon on healthy and diseased bone . 87
Simpson on infæcundity . . . 519
Simpson's new inst. for crushing calculi 576
Skull, fracture of the base of the · 508
Sleeplessness, Graves on . . · 169
Small-pox, history of . . . 66
Smee on the sources of physical science 391
Smith's minor surgery . . . 468
Soda, carb. of, treatment of burns by 556
Softenings, cerebral 459

Softenings, cerebral, colour of . . 461
Softenings, cerebral, curability of . 461
Solitary imprisonment with labour . 493
Spasmodic diseases, theory of . . 413
Spermatorrhœa, Ranking on . . 266
Spermatozoa in the fluid of hydrocele 362
Spina bifida, treatment of . . . 260
Spina bifida 555
Spinal chord, gouty ramollissement of, 173
Spine, lateral curvature of the . . 221
Spirits of wine, sale of . . . 553
Statistics, medical, Foltz . . . 281
Statistics of Bethlem . . . 364
Statistics of poisoning . . . 435
Statistics of fever in St. Thomas's 531
Statute of Bichat 239
Stevens on spina bifida . . . 260
Stewart on electro-puncture in hydrocele 260
Stomach of the horse, verminous tumours in the 236
Strangulated hernia reduced 'en masse' 45
Stricture, warm injections in . . 261
Strumous inflammation of conjunctiva 114
Sulphate of potass, Redwood on . 278
Suppression of urine . . . 122

T.

Tanchon on cancerous diseases . 213
Tanning a chancre 548
Tartar of the teeth, examination of the 234
Taylor on the climate of Pau . . 49
Taylor's medical jurisprudence . . 432
Teheran, Bell on an epidemic at . 383
Tetanic face 539
Testis, Curling on diseases of the . 313
Testis, anatomy of the 314
Testis in the fœtus 317
Testis, descent of the . . . 317
Testis, congenital imperfections . 320
Testis, imperfect descent of the . . 323
Thunder storms, Turley on . . 177
Tic-douloureux of the face and head 236
Tice's case of bronchial calculus . 34
Tinea capitis, Dr. Wigan on . . 265
Tinea favosa, nature of . . . 456
Todd's physiological anatomy . . 1
Toynbee on the pathology of the ear, 369
Traill on serpents 383
Transmission of hydatids by contagion 473
Trees and shrubs for cemeteries . 579
Treatment, hydropathic, death from 577
Tubucular elephantiasis, Kinnis on . 530
Turley on thunder-storms . . . 177
Tuson on cancer 547
Typhoid fever, calomel in . . 234
Typhus fever, Lombard on . . 506
Tympanitis of the uterus . . . 487
Tympanum, inflam. of membrane of, 370

U.

Ulceration of the internal jugular . 42
Ulceration of the pulmonary artery 45
Ulcers of the legs, Johnson on . . 254
Umbilical cord, aneurysm of the . 538
United States, medical education in . 570
Urethral pains, compression for . 514
Urinary organs, Guthrie on the . 183
Urinary diseases, Aldridge on . . 528
Urinary secretion, Liebig's theory of 528
Urine, suppression of . . . 122
Urine, Becquerel's semeiology of the 185
Urine, microscopic examination of the 502
Uteri, ulceration of the os and cervix 103
Uteri, os, enlargement of the glands of 104
Uteri, polypus, treated by ligature 553
Uterine appendages, Churchill on diseases of the 270
Uterus, Lever on diseases of the . 98
Uterus, inflammation of the . . 99
Uterus, corroding ulcer of the . . 105
Uterus, carcinoma of the . . . 107
Uterus, excision of the . . . 254
Uterus, dropsy of the . . . 488
Uterus, tympanitis of the . . . 487

V.

Valerianate of zinc 510
Variola, chloruretted lotions in . . 513
Varus mentagra, Dauverger on . 265
Vas deferens, deficiencies of the . 321
Vegetable kingdom, development of 3
Vegetable origin of porrigo decalvans 221
Vegetable origin of porrigo decalvans, objections to 538
Velpeau on caustic in ophthalmia . 511
Veratria in neuralgia . . . 510
Verminous tumors in stomach of horse 236
Veterinarian, the, by Youatt . . 125
Veterinary surgery, Field on . . 125
Veterinary College, charter of . . 579
Virey on respiratory and biliary organs 215
Vis medicatrix naturæ, Cayol on the 219
Vocal apparatus, hysterical affection of 42

W.

Walker's oculist's vade-mecum . 341
Walne on extirpation of ovarian cysts, 258
Warren on fissure of the palate . . 262
Warty vegetat. closing rima glottidis 538
Watson's practice of physic . . 143
Webster's case of paralysis . . 32
Webster on the statistics of Bethlem 364
Webster on insanity 365
Wigan on tinea capitis . . . 265
Williams on the pathology of cells . 246
Williams on extirpation of the superior maxilla 249
Williams's principles of medicine . 293

Y.

Yellow bark 277
Youatt's veterinarian . . . 125

Z.

Zinc, valerianate of 510
Zinc, chloride of, in cancer . . 547

CONTENTS

OF THE

MEDICO-CHIRURGICAL REVIEW,

No. LXXIX. JANUARY 1, 1844.

[BEING No. XXXIX. OF A DECENNIAL SERIES.]

REVIEWS.

I.

I. Lectures on the Comparative Anatomy and Physiology of the Invertebrate Animals, &c. By RICHARD OWEN, F.R.S.
II. Elements of Anatomy. By JONES QUAIN, M.D. Fifth Edition
III. The Physiological Anatomy and Physiology of Man. By R. B. TODD, F.R.S. and WM. BOWMAN, F.R.S. . . . 1
IV. Popular Cyclopædia of Natural Science: Article, Animal Physiology. By WM. CARPENTER, M.D. &c.

II.

Medico-Chirurgical Transactions, published by the Royal Medical and Chirurgical Society of London. Second Series, Volume the Eighth . . . 31
1. Case of Paralysis without Loss of Sensation, from Disease of the Cervical Medulla. By John Webster, M.D. . . . 32
2. Case of Bronchial Calculus, with Observations on Disease of the Bronchial Glands. By John Charles Graham Tice, M.D. . . . 34
3. On Congestive Pneumonia consequent upon Surgical Operations, Diseases, and Injuries. By John E. Erichsen, Esq. . . . 36
4. Researches into the Connexion existing between an Unnatural Degree of Compression of the Blood contained in the Renal Vessels, and the Presence of certain Abnormal Matters in the Urine. By George Robinson, Esq. . . . 38
5. On Fatty Degeneration of the Arteries, &c. By Geo. Gulliver, Esq. . . . 39
6. Remarks on the Calculi in St. George's Hospital. By Henry Bence Jones, M.A. . . . 39
7. Case of Ulceration of the Internal Jugular Vein, communicating with an Abscess. By William Bloxam, Esq. . . . 42
8. Some Account of an Hysterical Affection of the Vocal Apparatus, &c. By Oscar Clayton, Esq. . . . 42
9. Case of Erectile Tumor in the Popliteal Space—Removal. By Robert Liston, Esq. F.R.S. . . . 43
10. Two Cases of Osteosarcoma of the Thigh Bone, requiring Amputation of the Limb in both Instances. By R. A. Frogley, Esq. . . . 44
11. Remarks on Cancrum Oris, and the Gangrenous Erosion of the Cheek of Mr. Dease and Dr. Underwood, and more particularly on the Efficacy of the Chlorate of Potash, in the Treatment of those Diseases. By Henry Hunt, M.D. . . . 44
12. Case of Ulceration of the Pulmonary Artery into an Abscess of the Lungs. With Remarks by John Dalrymple, Esq. By William Crowfoot, Jun. Esq. . . . 45
13. Cases of Strangulated Hernia, reduced "*en masse*." With Observations. By James Luke, Esq. . . . 45

III.

On the Curative Influence of the Climate of Pau, and the Mineral Waters of the Pyrenees, on Disease, &c. By A. TAYLOR, M.D. . . . 49
1. Pau . . . 50
2. Bagnères de Bigorre . . . 54
3. Waters of Capbern . . . 57
4. Barreges . . . 57
5. Cauterets . . . 58
6. Eaux-bonnes and Eaux-chaudes . . . 59

IV.
Lectures on the Eruptive Fevers, delivered at St. Thomas's Hospital, in January 1843. By GEORGE GREGORY, M.D. &c. 60
V.
On Feigned and Factitious Diseases, chiefly of Soldiers and Seamen. By HECTOR GAVIN, M.D. 69
VI.
On Healthy and Diseased Bone, according to the Investigations of Frerichs, Marchand, Nasse, Ragsky, and Simon 87
VII.
A Practical Treatise on Organic Diseases of the Uterus. By JOHN C. W. LEVER, M.D. 98
1. Acute Inflammation of the Uterus, or Metritis 99
2. Ulceration of the Os and Cervix Uteri 103
3. Enlargement of the Glands of the Os Uteri, giving rise to Prurigo Pudendi 104
4. Carcinoma of the Uterus 107
VIII.
Clinical Remarks on Certain Diseases of the Eye, and on Miscellaneous Subjects, Medical and Surgical, &c. By JOHN CHARLES HALL, M.D. 111
1. Some of the more Important Remedies in Ocular Inflammation . . 113
2. Strumous Inflammation of the Conjunctiva 114
3. Irritable Ophthalmia of Females when Suckling 116
4. Purulent Ophthalmia 117
5. Malignant Affections 119
6. Fistula in Ano 120
7. Suppression of Urine 122
IX.
I. Posthumous Extracts from the Veterinary Records of the late John Field. Edited by his Brother, WILLIAM FIELD, V.S. . . . .
II. The Veterinarian, or Monthly Journal of Veterinary Science. Edited by Messrs. YOUATT and PERCIVALL 125
X.
I. Lectures on the Principles and Practice of Physic, delivered in King's College, London. By T. WATSON, M.D. . . . .
II. A System of Clinical Medicine. By R. J. GRAVES, M.D. . . . 143

PERISCOPE.

Bibliographical Notices.

1. An Essay on Thunder-storms—their Phenomena, and the Means of Safety from their Effects. By E. A. Turley, M.D 177
2. Elementary Instruction in Chemical Analysis. By Dr. C. R. Fresenius . 179
3. Blood and Urine of Chlorotic Subjects 179
4. Contributions to the Subject of the Action of Medicines 181
   1. On the Action of Alcohol and Ether on the Animal System . . 181
5. On the Anatomy and Diseases of the Urinary and Sexual Organs. By G. J. Guthrie, F.R.S. Third Edition 183
6. Principles of Forensic Medicine. By William A. Guy, M.B. Part II. . . 183
7. Elements of Chemistry, including the most recent Discoveries and Application of the Science to Medicine and Pharmacy and the Arts. By Robert Kane, M.D. 184
8. Elements of Natural Philosophy; being an Experimental Introduction to the Study of the Physical Sciences. By Golding Bird, M.D. 184
9. Semeiotique des Urines, ou Traité des Alterations de l'Urine dans les Maladies, &c. Par Alfred Becquerel, D.M. 185
   Semeiology of the Urine; or a Treatise on the Changes of the Urine in Diseases, &c. By Alfred Becquerel, M.D. 185
10. Cataract and its Treatment, comprising an Easy Mode of dividing the Cornea for its Extraction, &c. By John Scott, Esq. 190
11. Researches on the Decomposition and Disintegration of Phosphatic Vesical Calculi, and on the Introduction of Chemical Decomponents into the Living Bladder. By S. Elliott Hoskins, M.D. 191

Spirit of the Foreign Periodicals, &c.

1. Last Illness of Dr. Osann: Curious Mistake in Diagnosis 193
2. Death of M. Chervin 195
3. M. Reveillé Parise on Health and Disease 197
4. Orthopedic Controversy in Paris 201
5. Illustrations of Diseases from the Latin Classics 203
6. Letter from M. Bischoff to M. Breschet on Fecundation 206
7. Amenorrhœa, the Cause of, in the State of the Ovaries 208
8. M. Raciborski on the Critical age in Women 211
9. On the Increasing Frequency of Cancerous Diseases 213
10. The Physiological Antagonism between the Respiratory and the Biliary Organs. By M. Virey 215
11. On the Natural or Spontaneous Cure of Phthisis 217
12. M. Cayol on the Vis Medicatrix Naturæ 219
13. The Vegetable Origin of Porrigo Decalvans 220
14. Remarks on Lateral Curvatures of the Spine 221
15. M. Pouchet on Fecundation in Mammiferous Animals 223
16. Marriage, in a Social and Medical Point of View 226
17. Observations on Infanticide. By M. Duvergie 227
18. On certain Periodic or Intermittent Affections of the Eye 228
19. Medical Memoranda 229
    1. Reciprocal Influence of the Nervous and Sanguiferous Systems 229
    2. Of Asphyxia 229
20. M. Dumas on the Fattening of Cattle 230
21. The Hæmospasic Method of Treatment 231
22. Miscellaneous Notices 234
    1. Utility of Calomel in Typhoid Fever 234
    2. Microscopic Examination of the Tartar of the Teeth 234
    3. Medical Geography 235
    4. Epizootic Gangrenous Angina 235
    5. Verminous Tumors in the Stomach and Bowels of the Horse 236
    6. Tic Douloureux of the Face and Head 236
    7. The Epithelium Cells of the Intestines 236
    8. Proximate Cause of Hæmorrhage 237
    9. Maschaliatria, or Medication by the Axilla 237
    10. Memoranda on Cutaneous Diseases 237
    11. Treatment of Rheumatism 238
    12. Medical Anecdote 239
    13. Statue to Bichat 239
    14. On the Cutaneous Affections called Molluscum 239
    15. The Bisulphuret of Carbon 240
    16. A Royal Letter of Thanks 240

Clinical Review, and Hospital Reports.

1. Guy's Hospital Reports. Second Series, No. II. 241
    1. Observations on Pneumonia and its Consequences. By T. Addison, M.D. 241
    2. Observations on Lithotomy. By Bransby B. Cooper, F.R.S. . . . 241
    3. On a Fæculent Discharge at the Umbilicus, from Communication with the Diverticulum Ilei. By T. W. King 245
    4. On the Pathology of Cells. By Thomas Williams, M.B. 246
    5. Case of Extirpation of the Superior Maxillary Bone. By William Williams, Esq. 249
    6. On the Extirpation of Ovarian Cysts. By C. Aston Key . . . 250
    7. Cases of Puerperal Convulsions. With Remarks. By John C. W. Lever 251

ST. GEORGE'S HOSPITAL.

2. Report of some Cases occurring in the Practice of Mr. Henry James Johnson, Assistant Surgeon to the Hospital 254
    1. Ulcers of the Legs 254
    2. Eczema 254

Spirit of the British and American Periodicals, &c.

SURGERY.

1. Removal of the Uterus by the Large Abdominal Section - - 257
2. Removal of a Dropsical Ovarium, entire, by the Large Abdominal Section. By D. H. Walne, Esq. - - - - - - - 258
3. Case of Ovarian Tumors—both removed at the same Operation - 258
4. Phlebitis, with Remarks on its Pathology and Treatment. By N. Chapman, M.D. 259
5. A Case of Spina Bifida successfully treated by repeated Punctures; with Practical Remarks. By Alexander H. Stevens, M.D. - - 260
6. On Electro-puncture in Hydrocele. By F. C. Stewart, M.D. - 260
7. Warm Injections in Stricture - - - - - - - 261
8. Diagnosis of True and False Anchylosis - - - - - 261
9. Operation for Fissure of the Soft and Hard Palate. By J. M. Warren, M.D. 262
10. Case of Strangulated Hernia on the Left Side, and Protrusion of the Cœcum 262
11. Arch-Tourniquet - - - - - - - - - - 263
12. Caries of the Os Calcis successfully operated on. By Sir John Fife - 263
13. New Truss - - - - - - - - - - 264
14. New Mode of Reducing a Luxation of the Head of the Femur on the Dorsum Ilii - - - - - - - - - - 264

THERAPEUTICS.

15. Treatment of Hydrophobia by Compression of the Carotids - - 265
16. Dr. Wigan on Tinea Capitis - - - - - - - 265
17. Varus Mentagra and Gutta Rosea, the Sycosis Menti and Acne of Willan, treated with Sulphate of Iron externally. By. W. Dauverger - 265
18. Observations on Spermatorrhœa.. By W. H. Ranking, M.D. - 266
19. Naptha in Phthisis - - - - - - - - 267
20. Nitrate of Silver to prevent Bed-Sores and For Burns - - 267
21. Cure of Epistaxis - - - - - - - - 268

MIDWIFERY.

22. On the Treatment of Puerperal Convulsions before the full term of Utero-Gestation.. By S. Harris, M.D. - - - - - - 268
23. Obstetrical Auscultation. By H. Van Arsdale, M.D. - - 269
24. On Inflammation and Abscess of the Uterine Appendages. By Fleetwood Churchill, M.D. - - - - - - - - - 270
25. On Puerperal Convulsions. By Charles Halpin, M.D. Observations on Puerperal Convulsions. By Robert Johns, M.D. - - - 271

PHYSIOLOGY.

26. Abstract of a Report by Mr. Wharton Jones on the Ovum of Man and the Mammifera, before and after Fecundation - - - - - 272
27. Morality versus Physiology - - - - - - - - 275
28. The Physiological Effects of Highly Condensed Air on the Human Body. By W. Detmold - - - - - - - - - 276
29. Remarks on Fatty Urine. By Golding Bird, A.M. M.D. - - - 276

MATERIA MEDICA AND PHARMACY.

30. On Yellow Bark. By Mr. Battley - - - - - - 277
31. Therapeutic Properties of Matico. By Dr. Hunter Lane - - - 278
32. On the Solubility and some other Properties of Sulphate of Potash. By Mr. T. Redwood - - - - - - - - - - - 278
33. Ceratum Saponis. By Dr. Houlton - - - - - - 279
34. Provincial School of Pharmacy - - - - - - - 280
35. The Profits of Pharmaceutical Chemists - - - - - 280
36. Hydrated Peroxide of Iron in Poisoning by Arsenic - - - - 280

MISCELLANIES.

1. Medical Statistics of the United States Frigate Potomac. Commodore John Downes, Commander, during a Three Years' Voyage of Circumnavigation of the Globe. By J. M. Foltz, Esq. - - - - - - 281
2. The Endemic Influence of Civil Government, &c. By J. M. Foltz, M.D. - 283
3. An Opposition Coach - - - - - - - - - 285

Bibliographical Record - - - - - - - - - 286

Extra-Limites.

1. Indian-Medical Service - - - - - - - - 289
2. The Kheesah, or Indian Flesh Glove - - - - - - 291
3. Penny Doctors - - - - - - - - - 292

THE

Medico-Chirurgical Review,

No. LXXIX.

[NO. 39 OF A DECENNIAL SERIES.]

OCTOBER 1, TO JANUARY 1, 1844.

I. Lectures on the Comparative Anatomy and Physiology of the Invertebrate Animals, &c. By *Richard Owen*, F.R.S. 8vo. pp. 392. Longman and Co. 1843.

II. Elements of Anatomy. By *Jones Quain*, M.D. Fifth Edition. Edited by Professors *Richard Quain* and *William Sharpey*. 8vo. pp. 424. Taylor and Walton, 1843.

III. The Physiological Anatomy and Physiology of Man. By *R. B. Todd*, F.R.S. and *Wm. Boroman*, F.R.S. &c. Part I. 8vo. pp. 200. Parker, 1843.

IV. Popular Cyclopædia of Natural Science; Article, Animal Physiology. By *Wm. Carpenter*, M.D. &c. 12mo. pp. 579. Orr and Co. 1843.

Unquestionably one of the greatest discoveries, that has ever been achieved in physiological science, is the doctrine of what has been called Cell-Formation. By this term we mean to imply that all living bodies and all organic structures are primarily and essentially composed of simple *cells* or vesicles; these cells or vesicles containing the germs within themselves of other and new cells, in every respect like to those from which they sprung. The subject is one not only of the highest interest to the student of natural science, and to every one who takes an interest in searching into the mysteries of Creative Wisdom, but is of direct importance to the scientific physician, as affording a means of explaining not a few of the most curious phenomena exhibited by living bodies, in a state of disease as well as of health. Indeed it cannot be otherwise. Whatever advance is made in physiology, must inevitably lead to more enlarged and correct views on pathological inquiries. He who understands the living machine the best, ought surely to be the most skilful in assisting Nature to heal its injuries and compose its disorders. All our wisest practitioners have been, in their day, keen inquirers after the discovery of physiology; and many of the most valuable therapeutic suggestions have been derived from the skilful application of these discoveries to practice. Need we say more to

engage our readers' attention to the subject which we have selected for our present remarks?

The field of inquiry, which has been thus opened up, is most extensive and full of the most curious details; for the entire productions of the Vegetable, as well as of the Animal, world are embraced within its grasp. The law or principle of Cell-formation is applicable to all living things without exception—from the oak of the forest to the lichen on its branches—from man himself to the microscopic animalcule that eludes his unaided sight.

It is not possible for any one yet to appreciate the full magnitude and value of the discovery in question, or to estimate all its bearings on physiological and pathological science. Already it has given an entirely new aspect to the one, and it has served to explain some of the most remarkable phenomena in the other; while it still continues to bestow a rich harvest of reward on every patient observer of living Nature. But it may be here asked, to whom are we indebted for this important discovery? It is to Germany that we owe the boon. She may well be proud of her *Schleidens*, and *Schwanns*, and *Mullers*, and *Purkinjes*—not to mention others—for to them belongs the undivided honour of the achievement. With such labourers as these in the vineyard of Physiology, and with *Liebig* in that of Chemistry, Germany may justly claim to herself, just now, the foremost place of honour in two of the most attractive departments of physical science.

Truly the more that we know of Nature's works, the more are we lost in wonder at the magnitude and the variety of their details, contrasted with the fewness and simplicity of the elements or agencies that are employed to produce them. Many are the proofs of this truth afforded by the operations of the material Inorganic world around us. The spark elicited by rubbing a glass rod in our hands, is the offspring of the same cause that produces the lightning flash; the spurting crack of a piece of new-lit coal is but a parlour experiment, so to speak, that shows the terrible agency of pent-up gaseous matter, when it bursts forth in the volcano and the earthquake; and who is there that does not know that the very same law, that brings a tossed-up pebble to the ground, presides over and directs all the motions of the heavenly spheres? No less wonderful are the instances, afforded by Animated nature, in the illustration of the same great truth—that grand and ever-varied effects are evolved from the simplest causes. Everything indeed reveals a unity of design and a harmony of arrangement, proclaiming with a voice that cannot be mistaken, that there is One great Lord and Architect of all, in whom and by whom Nature lives, and moves, and has its being.

The increasing attention that began to be paid, some twenty or thirty years ago, to the study of Embryology, unquestionably prepared the way for those discoveries of later days, which it is our purpose on the present occasion briefly to explain.

When it was first announced that the human Fœtus, at certain early periods of its intra-uterine life, very closely resembles, in some of its structural arrangements, the configuration of various subordinate families of the zoological series, the assertion was received by many, in this country, as the mere whimsical idea of a transcendental visionary. Few were,

aware that, more than half a century ago, our own great countryman, *John Hunter*, had distinctly enunciated this most curious and interesting fact. Let us hear what the able illustrator of his works, Mr. *Owen*, says on this subject.

"Some of the medical acquaintances of John Hunter, who, we are told, complacently apostrophised his pursuits, in the language of pity, when they found him dissecting a snail, a bee, or a worm, little dreampt of the expanded views of the animal organization at which he was obtaining glimpses through those narrow casements. It would seem that Hunter himself was oppressed with the grandeur of the prospect, with the extent of the generalisations which his investigations of the lower animals, and of the embryonic forms of the higher ones, were forcing upon his reflective mind, if we may judge from his struggles to express ideas, at that period so novel and so vast, and to which he could give but imperfect utterance. 'If we were capable,' says he, 'of following the progress of increase of the number of the parts of the most perfect animal, as they first formed in succession, from the very first, to its state of full perfection, we should probably be able to compare it with some one of the incomplete animals themselves, of every order of animals in the creation, being at no stage different from some of those inferior orders; or, in other words, if we were to take a series of animals from the more imperfect to the perfect, we should probably find an imperfect animal corresponding with some stage of the most perfect. " 367.

In this truly prophetic sentence, the Newton of physiology seems to have clearly anticipated the most important discoveries that have been made, of late years, in the department of Formative and Embryotic Anatomy. The attentive reader cannot fail to remark that, if we carry out the line of reasoning suggested in the paragraph now quoted, it leads us on to the very threshold of the Doctrine of Cell-formation. For is it not the case that *Hunter* alludes to the embryos of the higher animals being, at different periods of their evolution, (most propably) comparable to the mature and perfect condition of "every order of the lower ones?" If so, the primordial and earliest condition must be that of the lowest of all the animal forms; viz: that of a simple vesicular bag or Cell. How interesting it is to mark the anticipating views of great original minds! As we shall probably revert to this topic hereafter, we need not say more at present.

Without further preface, therefore, we proceed to the immediate subject of our present inquiry—viz: to illustrate the doctrine of Cell-formation;—and with this view we propose first to take a rapid review of the general development of the Vegetable and Animal kingdoms, and then to notice the minute structure and mode of evolution of the Human frame.

The simplest form of vegetable life is that of a *cell* or vesicle, containing a fluid in which a number of granules or germinal atoms are observable. This is the structure of that minute ærial Fungus, known by the name of the *Red Snow* or *Gory Dew*, which gives a beautiful vermilion tint to the snow of the Arctic regions. Such, also, is that of another simple Fungus, which becomes developed in *yeast*, and the production of which is intimately connected with the process of fermentation. If a portion of yeast be examined with the microscope, we observe a number of isolated or separate cells, each of which will be found to shoot out from their surface one or more buds. These gradually become cells like the parent one from which they arose; and, ere long, they give origin to others like themselves,—the successive generations being usually arranged in a bead-like

or moniliform manner. This process of extension goes on so rapidly that, within the course of a few hours, five or six cells may have become developed in a row from the primary one. Sometimes one of these cells is observed to burst, and to give issue to a number of granules; these are the germs of a new brood of cells. Of a nearly similar nature to the Red Snow and Yeast plants, seems to be that reddish or green-coloured slimy matter which often forms on cold damp surfaces: it is found to consist of an aggregation of isolated cells or vesicles, in the midst of a semi-fluid substance which holds them together.

The Fungi, to which we give the names of the *Blue-Mould, Mildew, &c.*, and which are so apt to form on decaying animal and vegetable substances, may be considered as exhibiting the first step of advance in organised structure. They consist of jointed filaments which, on examination, are perceived to be composed of very minute elongated vesicles, laid on end to end, or collected together into an aggregated mass. In some of them, each joint, on separating, is capable of forming a new structure like its parent; while in others, part only of the vesicles seem to possess this power; the fertile ones being placed at the extremities or tops of the rest, which form the stalk of the simple plant. In a still higher tribe, the fertile cellules are collected together within a special envelop.

In the Lycoperdons or puff-balls, the *sporules* or germinal grains are mixed with filamentary shreds and inclosed in a tough membranous envelop; while in the Agarics or proper Mushrooms there is a distinct stem, which separates the reproductive apparatus, situated in the *pileus* or cap, from the nutritive and absorbent apparatus of the root. Yet in them, as in the very simplest kinds of Fungi, the organization is merely and entirely a congeries of distinct but associated cells.

The structure of the *Confervæ* does not differ in any essential respect from that which has been now described: it is nothing but a row of vesicles held together by a common enveloping membrane. Even that of the *Algæ* or proper *Sea-weeds* is scarcely removed from it; the rows of cells, of which they consist, being merely arranged side by side, so as to form their foliacous expansions—which, it is well known, sometimes attain an extraordinary length of development. Nearly the same remark may be made of another tribe of photophytic plants, the *Lichens*, which form so abundantly on old rocks and trees. Their dry and indurated upper surface is formed by the desiccation and consolidation of their primordial cells, (in consequence of constant exposure to the air and the heat of the sun) while their moist surface beneath serves to absorb nourishment, and to reproduce their generative Sporules.

The Characæ, the Hepaticæ or liver-worts, and the Mosses, may be considered to rank, in point of structural development, immediately above those forms of vegetable life already mentioned. In some of the *Charæ*, the tissue or substance of the plant seems to be almost as simple as that of the *Confervæ;* and it is only, by the greater complexity of their organs of fructification, that they are placed in a higher scale. Some of this family afford a most favourable opportunity to the physiologist of watching the development of the vesicular structure in plants: the new cells or vesicles may often be seen gradually forming at the extremities of the previously existing rows, that constitute the tubular filaments of which a

Chara consists. There is no appearance of true vascular tissue in its sructure, although the circulation (as it has been rather improperly called) of granules in the separate joints of the plant might lead a person at first to suppose so. The Hepaticæ, also, consist entirely of mere cellular or vesicular tissue, no distinct tubes or vessels being discoverable in any part of their structure. It is in the *Mosses* that we meet with the first traces (and they are only rudimentary) of a vascular arrangement. These beautiful members of the Cryptogamic family are provided with a fibrous stem, from whose base a number of radicle filaments shoot out, and which bears numerous leaves, regularly arranged upon it. These leaves exhibit the appearance of veins; but they are not composed, (as in the case of the higher plants,) of woody fibre and vessels, but only of a prolonged form of cellular tissue; and we find no *stomata* or breathing apertures on their surface, except in a very few instances. Mosses possess a remarkable tenacity of life, and power of resisting injurious influences which would destroy almost all other plants. Hence they often thrive on the most barren surfaces, and in situations where no vegetable forms, except those of the very simplest organization, could exist. The *Ferns* are still more highly organized than the Mosses; for in them, (when fully developed), not only is there a distinct system of vessels for the circulation of the sap—there are no spiral or air-vessels however—but the appearance of their roots is very similar to that of Phænogamous plants. It is therefore probable that nearly all their nourishment is derived from the soil by their means; their leaves serving for the aeration or respiratory function of the plant. It deserves however special notice that *Ferns*, in the early stage of their development, before as yet there is any appearance of stem or leaves, are merely *fronds*; in every respect like those of the Marchantia, (one of the Hepaticæ or Liver-worts,) and which are utterly destitute of any traces of vessels,—their whole tissue being nothing but an aggregation of cellules or vesicles. We may remark, *en passant*, that here we have a beautiful example, in the vegetable world, of that curious law which has been so successfully worked out in animal Embryology, viz: that the more highly organized beings pass through a succession of evolutions or transitory formations, each of which is represented or typified by the permanent condition of some of the lower tribes.

Even in the highest order of plants, all the vegetable tissues are essentially and primarily vesicular. It is difficult, indeed, to discover any trace of this organisation in the mature condition of some parts, as of the hard woody fibre, bark, &c.; but, even in these, it is readily perceived, if we examine them in the early stage of their development. In the leaves, flower, and fruit, however, this structure is always abundantly obvious; more especially in the case of juicy succulent plants.

As a matter of course, we cannot pursue this most interesting inquiry through its minute and varied details; those, who wish to study the subject as it deserves to be, must have recourse to the works of *Mirbel*, *Decandolle*, *Brown*, *Lindley*, *Schultze*, &c., on Vegetable Morphology. As the following passage from *Baly's* translation of *Muller's* Treatise on Physiology briefly enunciates the great leading truths to which we have been alluding, we gladly avail ourselves of it.

"The observations of *Mirbel* had shown that all the forms of vegetable tissue

are developed from cells, which at first constitute the whole mass of the tissue, but afterwards undergo various changes in their shape and size, so as to be converted into the woody fibre, spiral vessels, &c. M. *Schleiden* has more recently traced the development of the vegetable tissue at a still earlier stage. The abundant gum of the nascent parts of plants, such as the youngest albumen of a seed, when examined with the microscope, is seen to be turbid from the presence of minute molecules. Soon, larger granules are also observed in it. Around these granules, by a kind of coagulation, larger bodies are formed—the *cytoblasts* or cell-germs—in which the above-mentioned granules are still visible as nuclei. When the germ has attained its full size, a small vesicle appears on it; this enlarges and becomes the cell, in which the germ is still visible, either attached to its wall, or free in its cavity."

Objections have been made to some of the details of *Schleiden's* theory; but this is not the proper place or time to discuss any of the controverted points. It is sufficient for our present purpose to state, that it is now universally admitted that the primordial tissue of all plants, from the highest to the lowest, is uniformly and invariably the same.

So much for the external characters and general anatomy of vegetable productions. Let us now, in the prosecution of our subject, proceed to notice briefly the mechanism, so to speak, of two of their most important functions, Nutrition and Reproduction; and we shall find, at every step of our inquiry, numerous and most interesting proofs of the important part which *cells* perform in the operations of living beings.

In such plants as the Red Snow and Yeast Fungi, the process of absorbing the food is performed by every point of their surface alike. There is no distinction of parts; the plant may be said to be all root. But let it be remembered that, when we use such an expression, we enunciate only one of the functions performed; for, besides the act of absorbing nutriment, the simple vegetable cell, that constitutes the entire structure of the lowest vegetables, must have the power not only of assimilating this nutriment with the substance of its body, but also of respiring the air and producing certain changes in its constitution; not to mention another indispensable function, that of generating or reproducing its like. Each and all of these acts are quite as necessary to the humblest form of vegetable life, as to the very highest of the Flowering or Phænogamous plants. How marvellous is the fact! How pregnant with suggestions for deep and generalising reflection!

From the Red Snow and Yeast Fungi, we advance to the Algæ. In their case, there is ample reason to believe that the process of absorbing the food is going on with equal and ceaseless activity, at every point of their surface, by each separate cellule of which their tissue consists. By keeping this simple fact steadily in view, we can readily understand how it is that separate portions of such plants have an independent existence, and we can in some degree explain their extraordinary tenacity of life, not to mention their facility of reproduction.

In the highest of the Fungi, the proper Mushrooms, we find the earliest appearance of rootlets; the stem at the base gives out a number of radicle filaments, that seem to absorb the decaying matter from which these plants derive their nutriment The sap is then conveyed upwards—not by any distinct vessels or tubes, (for there are none in any part of the vegetable,) but only through the inter-cellular passages—to the top or *pileus*, where

it is diffused in every direction; for it is in this part that the germinating granules or *spores* are invariably present.

The Mosses, the allied genera of plants, are always provided with radicle filaments; and sometimes we observe similar appendages to proceed from the sides of the stalks and also from the lower surface of the leaves. But it has been fairly questioned whether these filaments are not intended rather for the support of the plant, than for the absorption of its nutriment. However this may be, all Botanists, we believe, admit that it is chiefly by the surface of their stem and leaves that Mosses derive most of their nourishment. But this is certainly not the case with the members of the highest Cryptogamic family, the Ferns. In them, as in all Flowering or Phænogamous plants, the function of Nutrition is chiefly performed by the *Spongioles* or spongy tips of the rootlets. On examining the structure of these parts, we find that they consist almost entirely of *cells;* a central fasciculus of minute tubes passing up from these to the larger roots, for the transmission of the absorbed fluid.

That, however, an active absorption of nutriment may be carried on by the general surface of certain flowering plants, is obvious from what we know of the growth of many of the Cacti, and of those Orchideæ, which have acquired the name of Air-plants from their growing suspended in the atmosphere. Here, therefore, we have a recurrence, as it were, to the primary organisation of vegetable structure, when every point of the surface was endowed with an equal power of absorption. Whenever, too, an impediment arises to the regular performance of this function by the radicles of a plant, the absorbing activity of the surface of the leaves, &c. becomes immediately increased, to compensate for the loss that would otherwise be sustained. Something of the same kind is observed in the case of animals, when any obstruction to the admission of food into the stomach and bowels exists. The lymphatics of the skin will then often act with unusual energy in absorbing fluids; and hence, by the use of baths of milk and such like substances, a considerable quantity of nutriment may occasionally be introduced into the system, for a length of time. This vicarious performance of duty will cease to surprise us, when we bear in mind that (as we shall afterwards show) the primary organisation of the cutaneous and mucous surfaces is strictly the same; just in the same manner as that of the Spongioles of the roots is identical with that of the Leaves of a plant. But this only in the way of parenthesis.

Proceeding in our inquiry respecting the function of Nutrition in the higher plants, we find that the nutriment, which is absorbed by the roots, rises, as *crude sap*, through a special system of vessels in the stem, and is thence conveyed to the leaves, there to undergo very curious and important changes from the action of the atmosphere on the living juice. The leaves are the Lungs of the plant; it is by them that the function of Vegetable respiration is performed. A quantity of aqueous vapour is exhaled; and at the same time carbon is absorbed from the atmosphere, and becomes assimilated with the sap.

These two important functions—of Exhalation and of the fixation of Carbon—are performed by the *cells,* of which the parenchymatous tissue of leaves consists. It is only after they have been duly performed, that the Sap, on its retrograde course to the stem, is found to have acquired its

proper and characteristic properties in each plant; it is then called *elaborated sap, proper juice* or *latex.* A very remarkable change has taken place in its physical, as well as in its sensible qualities. On its ascent, it was simple, homogeneous, and generally tasteless; but, on its descent, it is not only more or less sapid and energetic, but is also found to contain numerous cellules or *globules*, which may be seen to move about, even when the sap has been allowed to flow from the plant. These globules may be compared to the globules of the Chyle in animals; and also to the simple elementary cells, that constitute the lowest vegetable forms. In all probability, it is by their agency that the formation of new matter is constantly going on, at every point of the substance of a plant.. "According to the observation of *Amici*, the glutinous sap of the vine when removed from the stem assumes, during the species of coagulation which it undergoes, regular forms, closely analogous to those of the lower Confervæ on the one hand, and to the elementary tissues of which it supplies the materials, on the other. When wounds have been made in the course of its flow, it is evidently from the exudation which takes place at their edges that the regeneration of substance takes place; and it scarcely admits of a doubt, therefore, that the ingredients it contains are not *mere* chemical combinations of elementary bodies into organisable products, but that they are to a certain extent possessed of vital properties, which have been probably developed in them simultaneously with the traces of organisation they exhibit.

With this extract we close our remarks on the mechanism (if we may be allowed the phrase) of the function of Nutrition in plants, and now pass on to notice shortly that of their Reproduction.

The granular matter, observed within the vesicles of the lowest Fungi, consists, as we have already mentioned, of germinal atoms. These gradually become of a larger size, and more distinctly vesicular; and then either they are discharged, by the bursting of the parent-cell, to commence an independent existence; or they germinate, in the form of buds, from its outer surface. Each separate cell or vesicle is capable of reproducing others like itself. Such is the case with the very simplest vegetable beings; but, as we rise in the scale of organic development, we find that some only of the cells are fertile or reproductive, while others serve solely for the nutrition of the plant. This arrangement exists in the numerous tribe of the Algæ, including the Confervæ. In certain species, the granules are either collected into groups on the general surface of the *frond*, or on little separate leaflets, or inclosed in distinct cells, which may be regarded as analogous to the *Spores* of the higher groups of the Cryptogamic class. In the Fucus *Vesiculosus*, or common bladder-wrack, the reproductive cells are evolved from a special receptacle, and separate altogether from the parent plant, when they are mature. It is in some of the Confervoid family that the curious phenomenon of Spontaneous Motion of the germinal granules is most conspicuous. At first, these atoms are observed as green dots adhering to the inner surface of the fertile cells; they gradually become more and more distinct, and acquire a more definite appearance, and then separate themselves from their point of attachment, and move about freely in the fluid of the cell. When they are discharged, by the bursting of the cell, they are single, and more or less globular in

shape; but, by the evolution of new vesicles on their exterior, and the gradual elongation of these as they are successively formed, they begin to assume the filamentous configuration, characteristic of a Conferva.

In the proper Mushrooms, the fertile cells—or *spores* as they are called —which inclose the germinal granules, are collected together only in one part of the plant—viz. the fructifying membrane of the *pileus* or cap. The rest of the plant serves solely for the purposes of general nutrition and respiration, and has nothing to do with the reproductive apparatus, except in as far as the nourishment is thereby conveyed to it. Thus we observe that, as we rise in the scale of vegetable organisation, the Reproductive organs—which at first constituted the entire substance and body of the individual—form a smaller and smaller proportion of the entire plant, and their function is more and more independent of that of Nutrition. It may be here worth while to allude for a moment to the extraordinary productiveness of certain of the fungi: the number of germs liberated from a single plant, almost defies calculation.

"Of this," says Dr. Carpenter, "any one may convince himself by examining a puff-ball in a state of maturity. On this subject Fries states, 'The sporules are so infinite (in a single individual of *Reticularia maxima* I have counted above 10,000,000,) so subtle (they are scarcely visible to the naked eye, and often resemble thin smoke,) so light (raised, perhaps, by evaporation into the atmosphere,) and are dispersed in so many ways, (by the attraction of the sun, by insects, wind, elasticity, &c.,) that it is difficult to conceive a place from which they can be excluded.' According to this view, then, the germs of all kinds of Fungi are constantly floating in the atmosphere; and one species or another develops itself, according as the nature of the decomposing matter is respectively adapted to each." 71.

The *Bovista giganteum*, a large Fungus of the puff-ball tribe, has been known to spring up in the course of a single night, from a mere speck or point to the size of a large gourd, which has been estimated to contain 47,000,000,000 cellules.

In the higher Cryptogamous plants, the spores are contained in cases or receptacles, termed *thecæ*. But the mere circumstance of this additional envelop makes no change in the essential character and constitution of the organ. Each spore is a *cell* which includes numerous granular atoms; and these atoms, when mature, are observed to float about freely in the contained fluid. When the process of germination commences, several minute tubular prolongations shoot out from the walls of the cell; these also are found on examination to contain moving green granules, which unquestionably are the germs of future growths or formative cells. By the gradual and successive development of lateral rows of new cells, the expansion, known as the *frond* of the plant, is at length developed: this process may be well watched in the *Marchantia polymorpha*. From the lower surface of the frond, radicle fibres proceed; while, on its upper surface, numerous *stomata* or air-apertures are formed.

The germination of the spores of the Ferns takes place exactly in the same way as of the more subordinate groups of the Cryptogamous family. Although the one tribe of plants becomes subsequently much more highly organised than the other, there is no difference in the mechanism of their Reproductive apparatus.

Let us now briefly inquire what are the analogous parts in Flowering or Phænogamous plants to the spores of the Cryptogamic.

If we examine the particles of the *Pollen* dust of a flowering plant, we shall find that they are vesicles or *cells*, containing a semifluid matter that seems to be composed, in a great measure, of minute granular atoms: these atoms are often seen to be in active spontaneous motion. Here, therefore, we obviously have the analogue formation of the Spores in the lower tribes. But it may be asked, what then is the difference in the process of Reproduction in the two great sectional families of plants? The difference seems to consist in this simple circumstance—that the *spores* in the one are sufficiently organised in themselves to maintain an independent existence, and are therefore capable of germinating when separated from the parent; whereas, the *pollen-granules* of the other require to become more fully developed, and are for this purpose received into a receptacle (the ovule,) there to be nourished until they are mature. The changes, that are observed to take place in these vesicular granules, when they are shed on the moist surface of the Stigma, appear to be in every respect similar to those which we have described to occur in the Spores of the *Marchantia*, when they begin to germinate. A number of tubular filaments are protruded from every vesicle, and each of these little tubes are found to contain some of the granular atoms which had existed in the vesicle itself. These gradually work their way along the Style, until they reach the Ovarium or Germen of the plant, where they are received into the ovules (on the surface of each of which there is a minute aperture) which are lodged within. According to this view of the subject, each germinal granule may be regarded as the nucleus of an ovular cell. Within this cell it is nourished with the mucilaginous and feculine fluid that has been already prepared for its use, and there it begins to form the first cells of the future embryo plant. In this, its primary, stage of development, a close analogy exists between the organisation of the young seed in the flowering plant and that of the humblest fungi, as the Red Snow and Yeast plants. As the cells multiply and increase laterally as well as lengthwise, we then perceive a structural arrangement that is strictly the same, as that which we have described to be present in the proper Algæ. Other resemblances may be traced in the ulterior phases of its growth. The Cotyledons may be regarded as the analogue formations of the fronds of the Hepaticæ and young Ferns; and this analogy is still stronger as regards the latter plants, for they (the cotyledons) are, it is well known, of merely transitory existence, just as the fronds are in the case of the Ferns.

Up to this point of its development, the young phænogamous plant is entirely composed of Cellular or vesicular tissue; and it is not until the plumule has risen to some height, and the rudimentary leaves begin to make their appearance, that any distinct traces of Fibrous or Vascular tissue can be perceived.

From the review, however imperfect, which we have now taken of the structure and functions of different tribes of plants, it must be obvious, we hope, that the doctrine of Cell-Formation is the key, as it were, to unlock the hidden mysteries of Vegetable Anatomy and Physiology. A stream of light begins to play on the surface of the dark and hitherto inscrutable wonders of vital action. The processes of Nutrition and Repro-

duction are shown to be only modifications of a similar, if not the same, agency; and the apparently dissimilar forms of the various families of plants, from the highest of the Vascular to the very lowest of the Cellular, are found to be closely allied to each other, not less in the characters and development of their structure than in the mechanism of their leading functions.

Before dismissing the line of argument derived from the productions of the Vegetable Kingdom, there is one topic to which we wish briefly to allude, as it has some bearing on a pathological question, to be afterwards noticed.

By some Botanists it has been alleged that many of the Fungoid growths, which form on the surface of living plants, are to be considered rather as Diseases of the vegetable tissue on which they appear, than as distinct and individual plants. The Blight, Mildew, Smut, &c. have been compared to the Exanthemata in the human subject; and, in accordance with this idea, they have been ascribed to some irregularity or disorder of the stomata or pores on the surface of the plant. There cannot be a doubt that these *Fungi*—if we are still to call them so—are readily communicable from one plant to another, just as the contagious Exanthemata are. How their germs are introduced into the tissue of the living plant, has not yet been satisfactorily decided;—whether it is that they are absorbed by the Roots and conveyed along with the sap to different parts of its structure; or whether they at once enter the Stomata on the surface of the leaves, and there become developed. The latter is the more probable idea; and it receives confirmation from the singular and well-ascertained fact, that certain Insects, as well as plants, are subject to the formation of such fungoid growths within their bodies—the germs having become, (most probably) introduced into the tracheæ or breathing apertures on the surface of the body of the animal. Of this nature is the disease, termed *Muscardine*, to which silk-worms are liable. "This disease," says Dr. *Carpenter*, "has been ascertained to be due to the growth of a minute fungus, nearly resembling the common *mould*, within their bodies. It is capable of being communicated to any individual from one already affected, by the introduction, beneath the skin of the former, of some particles of the diseased portion of the latter; and it then spreads in the fatty mass beneath the skin, occasioning a destruction of this tissue, which is very important as a reservoir of nutriment to the animal, when it is about to pass into a state of complete inactivity. The fungus spreads by the extension of its own minute stems and branches,—and also by the production of new germs, which are taken up by the circulating blood, and carried to distant parts of the body. The disease invariably occasions the death of the Silk-worm; but it seldom shows itself externally, until afterwards, when it rapidly shoots forth from beneath the skin." The analogy, that has been traced between this vegetable morbid growth and some of animal origin, will be pointed out in a subsequent part of this article.

II. We now proceed to the second great division of our subject; viz. to point out the illustrations which the Cell-formation Doctrine receives from the organisation, and mode of development, of animal bodies.

As in the Vegetable, so in the Animal kingdom, the simplest form of living being is that of an independent *cell* or membranous bag, having no

distinction of parts, absorbing by every part of its surface, and propagating by the formation of small cells or bags, like to itself, within the parent cavity. This definition applies at least to the common *Hydatid* or Acephalocyst; and, if we are to regard this Entozoon as possessing an independent existence, it would seem that the presence of a mouth, leading into a central sac or stomach, is really not essential to an animal being, as has been generally asserted.

Some physiologists, however, and we observe that Mr. *Owen* is one of the number, view the Hydatid rather as a morbidly enlarged organic cell, than as an independent being. Let us hear what he says of it :—

"The Acephalocyst consists of a sub-globular or oval vesicle filled with fluid. Sometimes suspended freely in the fluid of a cyst of the surrounding condensed cellular tissue; sometimes attached to such a cyst; developing smaller acephalocysts, which are discharged from the outer or the inner surface of the parent cyst. These acephalocysts vary from the size of a pea to that of a child's head. In the larger ones the wall of the cyst has a distinctly laminated texture. They are of a pearly whiteness, without fibrous structure, elastic, spurting out their fluid when punctured. Their tissue is composed chiefly of a substance closely analogous to albumen, but differing by its solubility in hydrochloric acid; and also of another peculiar substance analogous to mucus. The fluid of the acephalocysts contains, according to Lobstein, a small quantity of albumen with some salts, including muriate of soda, and a large proportion of gelatin.

"The tunic of the acephalocyst is usually studded with more or less numerous and minute globules of a clear substance analogous to the 'hyaline,' whose remarkable properties in reproductive cells, Dr. Barry has recently described, and from which the young acephalocysts are developed. No contractile property, save that of ordinary elasticity, has been observed in the coats of the acephalocyst; no other organisation than that which I have just described; no other function than that of assimilation of the surrounding fluid by the general surface, and the development of new cells from the nuclei of hyaline." 45.

After comparing it to the Protococcus and the other lowest forms of Cryptogamic plants, which consist of a simple transparent cyst, he adds :

"The knowledge that we now possess of the primitive embryonic forms of all animals and of all animal tissues, places us in the position to take a true view of the nature of the acephalocyst. It seems to me to be most truly designated as a 'gigantic organic cell,' not as a species of animal, even of the simplest kind." 45.

Many physiologists, however, still regard the Hydatid as a genuine Entozoon, and certainly with considerable show of reason; for its powers of reproduction, by the formation of gemmæ or buds between its layers, seem to entitle it to such a classification.

But not to insist upon this example, what, we may ask, is the structure of some of the lowest Infusory animalculæ? *Ehrenberg*, indeed, has imagined that, within the minute globular sac that constitutes the body of the animal, there is an intestinal canal consisting of numerous bags or stomachs, into which the food is successively received; hence the appellation of *Polygastrica*, which he bestowed on these beings. But the truth of this conjecture seems to be very questionable; and many of the best microscopists in the present day are of opinion that there is really no canal within for the digestion of the food, but that this is simply received into the common cavity of the body, and floats about loosely within it.

(We need not at present do more than merely allude, *en passant*, to those most beautiful fringed fibres that surround the orifice or mouth of the animal, and which, under the name of vibratile *Cilia*, have of late years attracted so much notice in physiological researches. The use, which they serve, is obviously to cause currents in the surrounding water, and thus to draw the particles of food towards the opening of the mouth.) Here therefore we have an animal formation that is not a little analogous with the Red-Snow and Yeast Fungi. In both cases, the living being seems to consist of nothing but a *cell* or vesicle,—in the one class indeed, and not in the other, this has an orifice or mouth for the reception of the food—which serves for the purposes alike of self-Nutrition and of Reproduction.

This therefore may be regarded as the primordial and elementary form of zoological development. The animal is a single cell, and nothing else. The first advance from this most simple state is when several such Cells are aggregated or conglomerated together, and so arranged as to form a continuous whole; but yet are so independent of each other that they can live apart, and form separate existences, when severed from the parent mass.

This is the case with the *Hydra*, or common fresh-water polypi, which exhibits the appearance of a soft membranous bag, provided with a mouth and a circle of arms or tentacula around it. These serve for the seizure of its food. This is drawn to the mouth by the contraction of the tentacula, and the currents in the surrounding water produced by the constant motions of the vibratile *Cilia*, with which they are fringed; and thence it passes into the general cavity of the body, there to remain until it is *digested*, and afterwards to be rejected by the same orifice by which it entered. Every part of the inward sac or stomach seems capable of actively absorbing the nutritious fluid. This is then distributed in all directions, through the substance of the body—not indeed by any distinct vessels, but by mere passages or canals between the different cells that compose its substance.

Every one knows that a Hydra may be divided into numerous pieces—10, 20, or even more—and each of these pieces will become a separate and entire animal. This fact alone proves the independent vitality of the *cells*, which go to form it. But there is another circumstance, connected with the organization of the Polypes, that deserves our special notice in the present inquiry. There appears to be little or no difference in the active powers of the Inner and Outer surfaces of its body; for it is well known that this little animal may actually be turned inside out like the finger of a glove, and yet all the functions of life may go on as well as ever. The Skin will act as the stomach, and the Stomach will do the duties of the skin.

How emphatically does this curious fact demonstrate the primordial identity of the Cutaneous and Mucous structures! As we advance in our inquiry, we shall meet with some interesting proofs of the close analogy that may be traced in this respect, even in the case of the higher animals. But this remark only *en passant*: let us proceed in our *ascending* examination of animal development.

As the Hydra consists of an assemblage of numerous Cells, which are

more or less independent of each other, so the *Sertularia* and many other members of the Polypiferous family may be said to consist of an assemblage of Hydræ associated together into one, and yet each of them capable of living by itself. There is a stem and branches of a horny texture; and on the sides or ends of these are a number of little cells or bell-shaped chambers with their mouths directed upwards, in every one of which there resides a separate Hydra-like polype. Each of these Polypes is capable of living apart; but all are connected together by a set of channels or rudimentary vessels that pass along the stem and branches.

The next step of advance in animal organization is that exhibited in the structure of the *Sea Anemone* and the proper coral-forming Polypes. Their anatomy may be described thus:

The mouth opens into a rounded stomach, which has no second orifice; and, around this central sac, there is a series of radiating membranous partitions, which divide the space intervening between it and the outer covering of the body into numerous *cells* or chambers: these are destined to form and prepare the germs or ova of the offspring.

The structure of the *Acalephæ* or sea-nettle is very much the same. In the *Medusa*, for example, the semi-globular umbrella-shaped disk above contains the stomach, which is placed in the centre of the gelatinous mass and which opens by a single orifice or mouth, directed downwards. Around the stomach are four chambers, in which the eggs are prepared. In the edge of the disk, the nutritious fluid, which flows in channels excavated out of the soft tissues, seems to be aerated by being thus exposed freely to the surrounding water.

It is not until we come to the *Echinodermata* that we meet with any distinct traces of vessels or a circulating apparatus; and, even in them, this is still very imperfect. We may therefore regard the Echinodermata (which contain the highest members of the Radiate class) as forming the commencement of the *vascular* series of animals, and as being the analogues of the Mosses and Ferns in the vegetable world, in opposition to all the inferior zoological tribes whose tissues bear a very close resemblance to those of *cellular* plants, the fluid and solid parts being in contact with each other in every part of the body.

III. Having reached this point in our inquiry, we shall now direct our readers' attention to some of the most interesting facts, derived from the Embryological Anatomy of the higher animals, which serve to show how intimately allied in structural organization they are, at an early period of their development, to the groups we have been just considering.

The Ovum of all vertebrate, and of many invertebrate, animals may be described to be a compound *cell*, or a cell containing another cell within it. The outer one is called the Yolk-bag, or membrana Vitelli, and contains the yolk; the inner one is the Germinal vesicle, within which are numerous granular particles, that are the germs of new or embryo cells. The germinal vesicle seems to be the essential part of the ovum; the vitellus or yolk serving merely for the supply of nourishment to it, after impregnation. In many respects, it (the vesicle) may be regarded as analogous to the cell which constitutes the entire structure of the lowest Infusory animals. Mr. *Owen* quotes some interesting remarks of Dr.

Martin Barry on this very curious subject, and we cannot do better than present them to the reader. It may be useful to premise that the animalcule alluded to in the following observations—the Volvox Globator—is one of the polygastric Infusoria. It is described as "having the form of a hollow globe or rounded cell with a transparent wall, including other smaller but similar globes. This wall is studded all over with minute green points, disposed at regular distances from each other; and, when these are examined with a good microscope, they are found to be separate animalcules, closely resembling in structure those which in other species are separate; each having its own *Cilia*, by the vibrations of which, in connexion with the rest, the whole mass receives a rolling motion. The interior globes are young structures of a similar kind, which have had their origin in one of the animalcules of the parent animal. This, by dividing and subdividing, forms a new group of animalcules, which is at first attached to the interior of the wall of the parent structure; but after a time it is separated, and floats in its cavity; and, when it is mature, it is liberated by the bursting of the wall that incloses it—just as is the case with the cells of the Red Snow Fungus;—the destruction of the parent being thus necessary for the propagation of the race. Not unfrequently a third generation may be seen within the second, previously to the setting free of the latter; and, under the brilliant light and high magnifying power of the solar microscope, even a fourth generation has been seen within the third."

We are now prepared to appreciate Dr. *Barry's* observations, to which we alluded.

"Between the appearance presented by the mammiferous germ during the passage of the ovum through the Fallopian tube, and those met with in the young Volvox globator while within the parent, I find a resemblance which is very remarkable indeed, extending even to minute details. Not only do the cells of which the young Volvox is composed form a body resembling a mulberry, with a pellucid centre, but the cells gradually increase in number, apparently by doubling, at the same time diminishing in size, like the cells of the mammiferous germ; which they resemble also in being originally elliptical and flat.

"Some of the points of resemblance now mentioned were recognised in the delineations of the Volvox given by Professor Ehrenberg; others were noticed during some observations I have myself made on this very interesting microscopic object. Professor Ehrenberg has figured five pellucid globules in a young Volvox just escaped from the parent. These, the germs of another set, evidently resulted from division of the pellucid mass visible in an earlier state; so that here is to be recognised fissiparous generation of the kind I have described as reproducing cells." —*Owen, p.* 24.

"Fecundation of the ovum takes place in the same manner as nutrition of the cell, and seems, in some instances at least, comparable to the nutrition of one of the Infusoria.

"But farther, I recognise in Ehrenberg's delineations of the Infusoria, not merely a cell-formation, but everywhere the existence of transitory or assimilative cells.

"And farther still: the infusorial cells, like the cells of the larger organisms, have their origin in globules which become discs or 'cytoblasts;' these passing through stages such as those of ordinary cells. Thus in Ehrenberg's *Monadina* are to be found, I think, the following grades, perfectly analogous to the grades of cells:—

"1. Globules and discs.

"2. Discs with a pellucid point.
"3. The point dividing.
"4. Nucleated cells.
"5. The nuclei dividing and thus giving origin to
"6. Young cells, which are seen both within and escaped from parent cells.

"There really seems to have been much truth in the remark long since made by Oken, that animals are groups of bodies comparable to the Infusoria. The cell is itself a little organism; and cells coalesce to form a larger one.

"The remarks just made respecting fissiparous generation, I apprehend, may be applied to gemmiparous reproduction, or propagation by means of buds."—*Owen*, *p.* 25.

Mr. *Owen* takes exception to the comparison alluded to in the concluding paragraph; for—while he admits that the minute Infusoria, which seem to have their development arrested at the first or nearest stage from the primitive cell-formation, offer close and striking analogies to the primitive cells out of which the higher animals and all their tissues are developed—he emphatically remarks that the very step, which the Infusory Animalcules take beyond the primitive cell-stage, invests them with a specific character as independent and distinct in its nature, as that of the highest and most complicated organisms. "No mere organic cell," he continues, "destined for ulterior changes in a living organisation, has a mouth armed with teeth or provided with long tentacula; I will not lay stress on the alimentary canal and appended stomachs, which many still regard as *sub judice*."

The whole subject of Embryological Development is replete with remarkable illustrations of the law of Cell-formation. It would lead us greatly to exceed the limits of the present article, if we were to enter into a minute description of the successive stages or phases of this wonderful process; and this we regret the less, as we shall probably devote an article in our next number to its elucidation. A few explanatory remarks are all that we can find room for, just now.

The Yolk—and this, it should be remembered, is a mere magazine of nourishment stored up for the future embryo, just as the starchy and oily matter in the Seed is intended to serve for the germ of the plant—was discovered by *Schwann* to consist of delicate *cells* loosely aggregated, of oil globules, and of an albuminous fluid in which these are imbedded. He indeed is of opinion that it (the yolk) should be regarded not as mere nutritive matter, but rather as a body endowed with life; since the cells, of which it is made up, take an essential part in the formation of the embryo; but in this view he is not followed by most physiologists. That the cells effect a chemical change upon their contents during the process of Development, is obvious from the fact that the yolk then loses its coagulable property. *Reichert* has discovered that the formation of young cells, within the previously-existing cells composing the entire mass of the yolk, goes on continually during the whole period of development in frogs, in which tribe of animals the entire yolk is employed in the building-up of the embryo.

According also to the interesting researches of Dr. *Barry* on the changes observable in the ovum of the rabbit, just before and immediately after Impregnation, there is a constant formation of *cells* going on in the centre of the yolk. Each layer of these cells, while they enlarge and assume a

flattened elliptic shape, is pushed outwards by a new set that are developed internally to them. After impregnation, when the germinal vesicle has passed to the centre of the ovum, the development of cells, here described, takes place in successive layers around that body. Every layer, on reaching the exterior of the yolk mass, is seen to be circumscribed by a proper membrane, and at length undergoes liquefaction; the layer within, or internal to it, then supplying its place. Each of the flattened elliptic cells also contains minute cells, arranged concentrically around a pellucid point; and the contained cells again present a similar arrangement. The same process, in fact, which is observed to occur in the yolk as a whole, seems to take place in all the cells, of which it is composed.

While these changes are going on in the substance of the Yolk, the germinal Vesicle also—the essential part of the Ovum—is the seat of no less active evolutionary movements. Its centre is invariably found to exhibit (at a certain period) a dark nucleus. This gradually becomes larger and larger, and at length it is seen to contain a cavity filled with a most pellucid fluid. The outer portion of the spot or *nucleus* resolves itself into cells; and the foundations of other cells come into view in its interior, arranged in layers around the central cavity; the outer layers being pushed forth by the continual origin of new cells in the interior. The latter commence as dark globules in the pellucid fluid. The central portion of the altered spot, with its pellucid cavity, was at first situated towards the surface of the germinal vesicle; but, after impregnation, it passes to the centre of it, and the vesicle itself returns to the centre of the ovum. It is believed that some vivifying substance, probably a Spermatozoon, has by this time entered into the cavity of the germinal vesicle from the exterior of the ovary—as a fissure has sometimes been seen in the membranous envelop of the ovum. Dr. *Barry* proceeds to describe how two cells, larger than the rest, make their appearance at the centre of the altered germinal spot: these two cells are the earliest rudiments of the future being. They enlarge, and absorb the fluid of the surrounding cells, which, as well as the germinal vesicle itself, gradually melt away and cease to exist. From them, as from a centre, other cells are evolved, till the germ acquires a mulberry-like appearance, and the number of cells has increased so much that they cannot be counted. Within each, there is an intussusception or formation of new cells always going on; and thus there is a continual repetition of the very same phenomena which were first observed in the primordial Cell or germinal Vesicle. The embryotic mulberry-like mass subsequently passes from the centre of the yolk to a certain part of the vitelline membrane, which by this time has become invested with a layer of cells:—by the coalescence of the two the future amnion seems to be produced.

Fortunately it is not at all necessary for our present purpose to pursue this intricate subject further, as it is scarcely possible to render it at all intelligible without the aid of pictorial illustrations. There is one circumstance that deserves especial notice before we conclude, as showing the independent vitality of the Embryo, even after it is considerably developed:—the Ovum while it is undergoing its earliest phases of formation within the uterus, lies quite free and unattached in the cavity of this organ. Subsequently, indeed, the internal surface of the womb becomes

covered with an exudation, which is at first composed of numerous cellules, and constitutes the Membrana Decidua. Into this soft spongy tissue the *villi*, growing from the chorion of the ovum, become inserted, and seem to act as rootlets, drawing nourishment from the maternal structure, without having any organic vascular connection with it. At a later period of pregnancy, the union between mother and child is effected by means of the Placenta; which, if it does not establish a direct vascular communication between them, at least serves to render the latter much more dependent on the former, than hitherto it had been. Before dismissing the embryological argument of our question, we gladly avail ourselves of one or two extracts from Mr. *Owen's* lectures, which will be read with interest by every one. Treating of fissiparous Generation, he remarks:

"The Monad divides itself before our eyes, constituting two, then four, next eight individuals, and so on. The impregnated germinal vesicle, which the Monad permanently represents in nature, propagates, in like manner, by spontaneous fission and assimilation, a number of impregnated cells like itself. Most of these cells are metamorphosed into the tissues of the growing embryo, but not necessarily all. Certain nucleated cells, the progeny of the primordial one, and inheriting its powers, may become, without further stimulus, the centres of development of processes like those which have built up the body that contains them: they may bud forth from the stem of the Hydra, and form new individuals by the process of gemmation; they may bud forth, in like manner, from the larval polype of the Medusa, which thereby procreates in its immature, and, as it seems, virgin state like the wingless larvæ of the summer Aphides; they may enter the unimpregnated oviducts of these insects, and be there developed in the manner which has already been described." 367.

And, after showing that *Geoffroy St. Hilaire* and some of his disciples have pushed too far their favourite dogma that the embryos of the higher animals pass through, during the course of their development, a succession of phases, each of which is exactly represented by the permanent and mature organization of the lower tribes, he says:

"The extent to which the resemblance, expressed by the term 'Unity of Organisation,' may be traced between the higher and lower organised animals, bears an inverse ratio to their approximation to maturity.

"All animals resemble each other at the earliest period of their development, which commences with the manifestation of the assimilative and fissiparous properties of the polygastric animalcule: the potential germ of the Mammal can be compared, in form and vital actions with the Monad alone, and, at this period, unity of organisation may be predicated of the two extremes of the Animal Kingdom. The germ of the Polype pushes the resemblance farther, and acquires the locomotive organs of the Monad,—the superficial vibratile cilia,—before it takes on its special radiated type. The Acalephe passes through both the Infusorial and Polype stages, and propagates by gemmation, as well as spontaneous fission, before it acquires its mature form and sexual organs. The fulness of the unity of organisation which prevails through the Polypes and larval Acalephes, is diminished as the latter acquire maturity and assume their special form." 368.

There is a very interesting question of inquiry, connected with the early development of the embryo, and one that bears very directly on the physiological doctrine, which we have been endeavouring to explain—we mean: How, and at what time, is the blood formed in the nascent being?

It might naturally be supposed that the Vessels, which are to contain

the fluid, should be formed first. But this is not the case: the blood is generated, before the slightest traces of vascular tissue can be discerned. The sole material for its formation is the vesicular substance of the Germinal Membrane; and this itself is developed at the expense of the yolk of the ovum.* Around the central transparent part of this membrane, where the rudimentary embryo is observed to be, there is an opaque ring, which has been called the 'Area Vasculosa,'—because within it the blood and blood-vessels are formed. The earliest trace of the former presents the appearance of a mere granular deposit; this gradually becomes arranged in insulated portions or islets, having transparent interspaces between them. In these interspaces a fluid, that is at first yellowish, and is afterwards of a red colour, is observed: this is the Blood.

According to the observations of *Schwann*, the Blood-vessels are developed from nucleated cells, which send out processes from their sides; these processes from the different cells gradually unite together, and in this way ramifications and a network are produced. Vessels then begin to extend from this network in the 'Area Vasculosa' into the transparent central spot, and join the rudimentary Heart; which at this time is nothing more than an elongated tube. When the heart begins to pulsate, the fluid, which circulates, is at first nearly colourless: the red globules or corpuscles only appearing subsequently. Physiologists are not agreed as to whether the blood, when first formed, has any power of self-propulsion, and whether it moves in the 'Area Vasculosa' of the germinal membrane, before the rudimentary heart has begun to act. Numerous arguments, both *pro* and *con*, have been urged with great ability by very distinguished writers. The movements of the Sap in plants have often been appealed to in favour of the idea that the blood has an inherent power of self-propulsion. But, as *Muller* remarks, "although the circulation of the vegetable sap, effected by means of attraction only, shows the possibility of the occurrence of a similar phenomenon in animals, still there are at present no direct observations which prove it in a conclusive manner. The circular currents in many of the lower animals, which had been compared to the motion of the sap in the Chara, and the movement of fluids in vessels, themselves destitute of motion, observed in some Distomata by *Ehrenberg*, have been recently shown to depend on the vibrations of cilia." The question may therefore be regarded as still "sub judice."

This seems to be a fit opportunity to introduce a few remarks on the Globules of the blood, in connection with the doctrine of Cell-formation. The blood of all Vertebrate or red-blooded animals consists of two

* The following important remarks by *Müller* well deserve especial attention. "It is evident," says he, "that, in the embryo, the Blood is formed from the substance of the Germinal Membrane, which assimilates to itself the fluids of the ovum, and that no particular organ is then required; for at that period no organs, such as intestinal canal, liver, spleen or lungs, exist. This fact teaches us that we must not expect to discover the process of the formation of the blood and its red particles (from the globules of the chyle?) in any special organs of the adult animal; indeed it is very probable that, in the adult, the chyle is converted into blood under the influence of the same general vital properties, which are in action in the incubated egg."

distinct parts, viz: a clear and nearly colourless fluid,—known by the name of the *Liquor sanguinis* or *Plasma*—and an innumerable number of rounded particles floating in this fluid, well known as the Globules of the blood. The former is a solution (?) of the fibrine or coagulable lymph in the serum or watery portion; while it is to the latter that the colour of the blood is altogether owing. These globules are always most abundant in animals of great muscular vigour and activity, and which consume the largest amount of oxygen during respiration: hence, they are most numerous in the blood of Birds, and least so in Reptiles and Fishes. In the human subject, their proportion varies very much according to the health of the individual; abounding in robust constitutions and being much diminished in pale and feeble habits. When examined with the microscope, they are found to be flattened *cells* or vesicles, which contain a red-coloured fluid, and a *nucleus* or assemblage of minute granules, adherent to each other and to the parietes of the enveloping saccula.

This nucleus "corresponds in all essential particulars to the nucleus of the Vegetable Cell, as well as to that of the cells, in which the animal tissues have their origin." The contained fluid of the red globules is found to have a portion of *iron* dissolved in it; and, from a variety of considerations, it has been very reasonably conjectured that the presence of the ferruginous salt is for the purpose of absorbing oxygen—either from the atmosphere or from water—during the process of respiration.* Hence the red globules have been supposed to serve the purpose of carrying or conveying Oxygen from the lungs to all the various tissues of the body; and of bringing back the Carbonic acid (in the form of carbonate of iron,) that is continually generating in the capillary vessels, to the lungs, to be there disengaged during expiration. As there are no red globules in the blood of the Invertebrata (though not a few possess great muscular activity,) and as these animals nevertheless require the introduction of oxygen into the system quite as much as those of the higher zoological class, there must be some means provided to compensate for the deficiency in question. It has been supposed that the numerous *tracheæ* or air-tubes, which permeate every part of the body in Insects and others of the Articulate family, may serve for this purpose.

Mr. *Owen* was the first, we believe, to remark that the red Globules of the blood, like other organic Cells, and like the minute Infusory animalcules, may be multiplied by what is called fissiparous generation; in other words, by their spontaneous division into separate portions, each of which ultimately forms a distinct and independent globule. The notion of *Eber* and *Mayer*, that the red particles are really infusory animals, is entirely fanciful. There can be no doubt, however, that they are continually dying and reproducing themselves, in a way very similar to what takes place in the simplest forms of animal existence.

Besides the red globules now described in the blood of Vertebrate Ani-

---

* We need scarcely remind our readers how important a remedy *iron* is in all cases where there is a deficiency of the red globules. Being an essential ingredient in the fluid which they contain, it seems to have the power of accelerating their reproduction in cases where they are deficient, as in Chlorosis, Anæmia, &c.

mals, there are others which are nearly destitute of colour, and which have been supposed to perform a very different function. "Their size," we borrow the description from Dr. Carpenter's Cyclopædia, "is pretty much the same in all the Vertebrata, (that of the proper red globules varies exceedingly, being much larger in Reptiles and Fishes than in the Mammalia,) and is usually about 1-3000th of an inch in diameter. In the blood of man and the mammalia in general, they are not easily distinguished from the red particles; since their size is so nearly the same; and the colour of single disks of the two kinds is not very dissimilar. But, with a good microscope, several differences can be seen: and there is much reason to believe that these colourless particles are the same with the particles of the chyle and lymph. In the lower Vertebrata, whose blood has large oval red particles, the difference between the two kinds is very obvious; and the resemblance, which the colourless globules bear to those of the chyle and lymph, is very striking. Similar colourless particles exist, to a variable amount, in the nutritive fluid of Invertebrated Animals; so that in this, as in some other respects, that fluid bears a stronger resemblance to the chyle and lymph of the Vertebrata, than it does to their blood, which is characterized by the presence of the red particles."

As we shall afterwards revert to the constitution of the Chyle and Lymph, we proceed now to notice briefly the manner in which some of the most important tissues of animal bodies are supposed to be formed from the elements of the blood.

When the Fibrine, that is contained in the *liquor Sanguinis*, is poured out upon any living surface, it forms a membraniform layer—which is known by the name of Coagulable lymph, in cases of inflammation and recent wounds. In this simple manner, it is imagined that the various *fibrous tissues* of an animal body have been originally formed. Of these, the most simple and the most abundant is that which has usually been called the Cellular Tissue, but which might be much more correctly denominated Areolar or Reticular Tissue,—to prevent confusion with the use of the words *cell* and *cellular* in the acceptation of vesicular, or consisting of vesicles or globules.

It is composed of a net-work of fibres and membranous laminæ, so conjoined and laced together, as to leave numerous interstices or intervening cavities, which are not closed, but communicate pretty freely with each other. By means of this tissue, the various structures and organs of the body are united together; besides, it enters more or less largely into the composition of every one of them.* The Serous membranes appear to be merely a modification of the Areolar tissue; and the same may be said of the Ligaments, Tendons, and Fasciæ—all of them consisting of mere fibres, which are more or less closely adherent.

* An interesting circumstance, connected with the formation of Cellular Tissues is that, when other parts of the body become wasted from loss or suspension of their functions, their organisation usually *degenerates*, and assumes its character. This is often seen to be the case, when muscles have been long disused, and when nerves have become paralytic. A similar change occurs in blood-vessels that become obstructed, and in glands, such as the Thymus, that waste away.

Besides these parts, it would seem that the outer layer of the true Skin and the proper substance—the woof and web, so to speak—of all Mucous membranes, as well as the internal coat of the Blood-vessels, consist of thin layers of membrane, composed of consolidated fibrine. This, of late years, has been called the *basement* or *primary membrane;* it is chiefly remarkable for the facility with which fluids can permeate it, although no pores are visible on its surface. In the case of the skin and mucous tissues, it is covered with an investing layer, known as the Epidermis and the Epithelium, whose structure we find, on microscopic examination, to be essentially different from that of the membrane on which it rests.

The *Epidermis*, when examined under a tolerable magnifying power, is observed to consist of numerous layers of minute scales or laminæ, which can be readily separated by brisk friction with any moderately rough substance.*

These scales are produced by the desiccation of the innumerable vesicles or *cells*, of which the Epidermis primarily consists. The inner layers of the cells, being kept soft by the moisture which transudes through the true skin, retain more or less distinctly their vesicular character; and, as the outer ones dry and fall off, these are pushed forward to supply their place. There is thus a constant decay and renewal of these Epidermal Cells, the strata of which are in various stages of development, in proportion to their proximity to the external surface. *Henle*, to whom we are indebted for the most accurate information on this subject, says, that the deepest stratum or layer consists of nucleated cells, in which the external vesicle is so little larger than the nucleus, that often it cannot be detected, and is sometimes, perhaps, really absent. Further from the surface of the Cutis vera, or, more externally, the nuclei appear more granular and of a larger size, while the cells themselves have enlarged in a still greater degree. Towards the outer surface, both nuclei and cells are so flattened as at length to have the form of delicate laminæ; and in the most superficial laminæ, the nuclei are scarcely visible. It hence appears that the nuclei of the *Epidermis Cells* are first formed; that the cells or vesicles are afterwards developed; and that they subsequently undergo certain changes of form, by which they are converted into the lamellæ, which we have described above. The part, that is called *Rete mucosum*, has usually been regarded as a distinct tissue or membrane. This is not correct; as, in truth, it is nothing more than one stratum (the last formed) of the epidermal cells, many of which contain a Pigment-secretion, to which the hue of the skin is owing. All the various modifications, which the Epidermis undergoes in different animals, exhibit, at some period of their development, more or less distinctly their primordial vesicular structure. Thus, in many shells, the external layers are observed to be formed of cells, arranged side by side, and filled with mineral matter; this is the case with the brownish substance, which constitutes nearly the entire shell of the Pinna, the edges of the outer layers of the common Oyster, &c. The

* Any one who has been in the habit of using the horse-hair gloves, now so much in vogue, must have observed what a quantity of scurfy dust, or small scales, may be beaten out of them, after the body and limbs have been well curried.

scales of fishes and reptiles, the feathers of birds, the hoofs, claws, nails and hair of mammal animals, are all to be regarded as mere modifications of Epidermal tissue, and consequently exhibit the same organisation, when they are first developed.

The *Epithelium*, that invests the free surface of all mucous membranes, is essentially the same in structure as the Epidermis. Its surface is always found to be covered with a layer of minute cells—the *Epithelium-Cells*, that we believed to play so important a part in the process of Secretion. As in the case of the Epidermis, these cells are in a state of being constantly renewed; the outer layer bursting and discharging their contents, and an inner one coming forward to supply its place. This constant renewal is owing to the development of new cells, from germs contained in the *basement membrane*, at the expense of the "liquor sanguinis," which transudes through it from the vessels beneath.* The Epithelium-cells are believed to be the agents, by which the secretion of the *mucus* is performed. The mucous membrane, whose use is limited to this purpose, and which has no absorbing function at the same time,—such as that which lines all the respiratory passages,—is of a much more simple structure than that which performs both duties,—as, for example, the lining of the alimentary tube. In the case of the latter, the expansion of the mucous surface is prodigiously increased, not only by means of numerous folds and projections, but also by the pits or follicular depressions, dispersed along its whole extent. The function of *Absorption* appears to be performed by the Epithelium-Cells of the Villi which cover the former; while that of *Secretion* is performed by those Cells which line the latter.

---

* The following excellent description, by Dr. *Sharpey*, of the mode in which the blood serves for the nourishment and development of cells, will well repay an attentive perusal:

"In the instances of cuticle and epithelium, no vessels enter the tissue, but the nutrient fluid which the vessels afford penetrates a certain way into the growing mass, and the cells continue to assimilate this fluid, and pass through their changes at a distance from, and independently of, the blood-vessels. Whether, in such cases, the whole of the residuary blastema remains as intercellular substance, or whether a part is again absorbed into the vessels, is not known. In other non-vascular tissues, such as articular cartilage, the nutrient fluid is doubtless, in like manner, conveyed by imbibition through their mass, where it is then attracted and assimilated. The mode of nutrition of these and other non-vascular masses of tissue may be compared, indeed, to that which takes place throughout the entire organism in cellular plants, as well as in polypes, and some other simple kinds of animals, in which no vessels have been detected. But even in the vascular tissues the case is not absolutely different; in these, it is true, the vessels traverse the tissue, but they do not penetrate into its structural elements. Thus the capillary vessels of muscle pass between and around its fibres, but they do not enter them; still less do they penetrate the fibrillæ within the fibre: these, indeed, are much smaller than the finest vessel. The nutrient fluid, on exuding from the vessels, has here, therefore, as well as in the non-vascular tissues, to permeate the adjoining mass by transudation, in order to reach these elements, and yield new substance at every point where renovation is going on. The vessels of a tissue have, indeed, been not unaptly compared to the artificial channels of irrigation which distribute water over a field; just a

The Villi have been aptly compared to the *Spongioles* of the roots of plants, and seem to be endowed with the peculiar property of selecting the nutritive fluid and conveying it to the lacteal absorbents. These vessels do not reach to the extremity of the villi, nor do they open on the surface of the mucous membrane by any appreciable apertures; but the end of each villus is composed of a loose spongy tissue, in which a number of *cells* may be seen, in various stages of development, during the process of absorbing the chyle. It appears almost certain, from the recent observations of Mr. *Goodsir*, that the Absorption of chyle is really performed by these cells; and that a fresh crop (as it were) is being produced, every time that digestion takes place and chyle is prepared. In the interval, no cells can be seen in the ends of the lacteals; but they begin to be developed (from the germs that were left behind by the previous crop,) as soon as the chyle is prepared. Their growth is very rapid and their life is transitory. In growing, they absorb into themselves part of the fluid that surrounds them; and it is probable that, when they are mature, they either burst or dissolve away, and deliver this fluid to the absorbent vessels.

As we have already spoken of the Blood, it will be convenient now to notice the physical characters of the Chyle, and, with it, of the Lymph. Both of these fluids contain *globules* or floating Cells, and also fibrine; but they are more abundant in the former than in the latter. The chyle contains a large quantity of fat in a free state; while in the lymph and also in the blood, it is in a state of combination with other matters. The chyle, like the blood, contains *iron*, which it derives from the food; but the metal appears to be in a state of much less intimate combination in the former than in the latter fluid; for its presence can be much more easily detected by chemical re-agents.

The appearance and characters of the Chyle differ, in some important respects, according to the part of the lacteal system, from which it is obtained for examination. The following passage, from Dr. *Carpenter's* popular work, presents a good picture of these changes.

"If obtained," says he, "near the surface of the intestines, before it has passed through the mesenteric glands, it is entirely destitute of that power of spontaneously coagulating which is so remarkable in blood; and, when examined with a microscope, it is seen to present a number of oily globules of various sizes, together with an immense number of very minute particles or molecules, which also seem of a fatty nature; and to these last, whose diameter is between 1-24,000th and 1-36,000th of an inch, the milky whiteness which characterises chyle, seems principally due. But the chyle, drawn from the lacteals, after they have passed through the mesenteric glands, possesses the power of coagulating slightly: hence it is evident that some of the albumen has undergone a transformation

---

the water penetrates and pervades the soil which lies between the intersecting streamlets, and thus reaches the growing plants, so the nutritious fluid, escaping through the coats of the blood-vessels, must permeate the intermediate mass of tissue which lies in the meshes of even the finest vascular network. The quantity of fluid supplied, and the distance it has to penetrate beyond the vessels, will vary according to the proportion which the latter bear to the mass requiring to be nourished."

into fibrine. At the same time, a great increase is observed in the number of certain floating *cells*, which are occasionally to be noticed in the first chyle, but which are very abundant in the fluid drawn from the glands, and from the lacteals that have passed through them; these are colourless, and, like most other cells, contain smaller particles within them: their average diameter is about $\frac{1}{4000}$th of an inch. By the time that the chyle reaches the central receptacle (the thoracic Duct) its power of coagulating has still farther increased; so that its resemblance to blood, except in regard to colour, is much stronger. The proportion of Fibrine and Albumen, which it contains, is much greater than that which existed in the first chyle, whilst the amount of oily matter is less; hence it seems probable that the latter has been partly transformed into albumen."

We shall not, at present, inquire what is the most probable cause of these successive changes in the constitution of the Chyle. Suffice it to say, that the accuracy of the preceding remarks has been amply confirmed by the most careful observations, and that the important and essential phenomenon in these changes is the gradually increasing number of the *floating cells*, as the Chyle approaches the thoracic duct.

In the Invertebrata, no lacteals nor lymphatics are discoverable in any part; the blood-vessels have therefore to perform the function of absorption. We have already stated that the blood of these animals is destitute of red globules, and has more resemblance to the chyle than to the blood of the Vertebrata.

Having thus briefly sketched the most remarkable features of the process of Absorption, we shall now, for a moment, turn to that of Secretion. As stated above, there is good reason to believe that the mucus of the intestines is secreted by the minute cells, which line the mucous membrane and the follicles dispersed upon its surface. These *Epethelium*-cells are continually coming forward, bursting and discharging their contents, and are then replaced by a deeper-seated new crop, which advance to maturity, as the others pass away. The mucous *follicles* seem to serve the purpose of merely increasing the extent of the secreting surface, at those parts where a large amount of secretion is required.

But it is not the secretion of Mucus only that is effected in this way. All the other Secretions of the body appear to be performed in a similar manner, viz: by the agency of cells lining mucous surfaces; such surfaces being in the form either of tubes or of rounded follicles. All the conglomerate Glands are ultimately resolvable into an innumerable number of *acini* or bundles of follicles, which open into minute efferent ducts: by the union of these ducts the main excretory duct of the gland is formed. Such a gland, therefore, when freed from its blood-vessels and the cellular tissue which enters so largely into its composition, would resemble a bunch of grapes; each separate grape attached to its own little footstalk, and these gradually coalescing and forming the main stalk which upholds the bunch.

This description accurately represents the structure of the Liver in Crustaceous and Molluscous animals. In Insects, on the other hand, the hepatic organ consists of a few elongated *tubes*, and there is no vestige of any proper glandular or parenchymatous substance; while, in some of the Polypes, the only rudiments of a liver are a few mere *follicles*, lodged in the walls of the stomach, and which therefore are quite similar to the

intestinal follicles in the Mammalia.* These follicles,—whether simple as in the Zoophyte, or complex and conglomerate as in the higher animals—are believed to be invariably lined with *Cells*; which, by their constant formation and destruction, perform the important office of eliminating the particular secretion. We cannot indeed tell, nor even form a reasonable conjecture, why one set of cells should secrete Bile, another Mucus, a third Urine, and so forth. All that we can say is, that such is the fact; and that certain cells are endowed with the vital power of selecting from the circulating juices the particular elements of the secretion, which they are appointed to accomplish. The *why* is a mystery; but not a greater one than to explain how one portion of the petal of a flower should secrete a red dyé, while the adjoining portion may secrete a yellow; or how some of the cells in the early embryo become converted into muscular substance, and others into cartilage or epidermis. Although much remains to be discovered, still it is an important point gained in our investigation of the process of Secretion, if we have ascertained with tolerable certainty that it is performed by the agency and interposition of *cells*.

A curious circumstance connected with this very important function is that, in certain states of the system, a secretion is sometimes eliminated, not by the usual apparatus destined for this purpose, but either by another gland or by another secreting surface. For example, the Urine has been known to pass off by the skin, or the bowels, when an obstruction has existed either to its secretion by the kidneys, or to its escape from the bladder; and the Milk has occasionally been discharged from the salivary glands, kidneys, &c. when something had occurred to prevent the mammæ from doing their duty.

This interchange, or vicarious performance, of function, will probably surprise the reader less, when he calls to mind the intimate analogy that exists,—not only in many of the lower groups of animals, but also in the early stages of the development of the human fœtus,—between the cutaneous and mucous surfaces, and the very close resemblance in the mechanism, or elaborating apparatus, of the different secretions of the body. We have seen that there is good reason to believe that this invariably consists in the formation of the minute *cells* or vesicles upon an epithelial surface, and that every gland, however complex its structure may be in the higher tribes of animals, is resolvable into one or more simple follicles or tubes. This identity of structure, therefore, partly prepares us to anticipate that one gland may occasionally perform the duties of another. Until we know more of the Chemistry of life and the elective attractions of living organisms, we cannot expect to push our inquiries much further.

There still remain one or two tissues or component parts of an Animal body, to whose development and formation we wish to allude, as affording

* As another curious illustration of the fact, that form or outward structure of a gland has nothing to do with determining the nature of the secretion which it elaborates, we may mention that, while the urine is generally secreted in *tubes*—which are either closely conglomerated and associated together, as in the medullary substance of the kidney in the Mammalia; or are separated and detached from each other, as in Insects—yet in Molluscous animals, this secretion is effected by mere *follicles*.

additional illustrations of the great Physiological Doctrine we have been considering: and first of the *Fat* or Adipose substance. This is to be regarded as a simple secretion that has been eliminated from the blood, and which is stored up in numerous sacs or *cells*, for the use of the individual organism. These cells are independent and distinct; they do not communicate with each other; and their function seems to be to separate from the circulating fluid the oleaginous particles, which constitute the Fat. The deposition, therefore, of this substance is strictly and truly a Secretion; and indeed a marked analogy may be traced between this process in animals, and the elaboration of the resinous and oily matter in the leaves of many plants; not only as regards the chemical proportions of the substances in question, but also because, in both instances, they are stored up in the cells which formed them, and then constitute part of the general fabric of the individual—not for the purpose of subsequent Excretion, but rather for that of self-Sustentation.

The *pigment* also, or colouring matter of the skin and *choroid coat* of the eye is found on examination to consist of numerous *cells*, which have the power of secreting a black granular matter in their interior.

The black-spots on the skin of the Frog, Water-newt, &c. are produced by the presence of similar pigment-cells; the colouring matter being secreted by and stored up in them, just as the fat is in the cells of the adipose tissue.*

If space permitted, we might now notice at some length the development and formative evolution of the Solid parts of the body; but this part of our subject we can only glance at. The structure of nascent *Cartilage* is always appealed to, as affording a good illustrative example of the Cellular Doctrine. With the aid of the microscope, it is readily perceived to be composed of numerous *cellules* lying near together in the midst of a quantity of an inter-cellular substance, that is very similar to what exists in the general tissue of many plants. The conversion of cartilage into *bone* is effected by the deposition within the cells of earthy matter, that has been eliminated from the blood.

The following observations on the subject, by *Muller*, may be aptly quoted here:

"The process of the development of Cartilage seems to be independent of blood-vessels, and to be wholly analogous to the process of growth in vegetable tissues. How the Canals, radiating from the corpuscles of ossified bone, are developed, is not known. Two hypotheses are proposed by *Schwann*. If the osseous corpuscles are the cavities of cells, the thickened

* "The secreting cells not unfrequently possess the power of elaborating a peculiar colouring matter, either separately or along with the substances which seem more characteristic of the secretion. Thus the *ink* of the Cuttle-fish is in reality its urine, charged with a quantity of black matter formed in the pigment-cells that line its ink-bag; and the corresponding secretion in other Mollusca is rendered purple by the same cause. The bile seems to be universally tinged with a yellow colouring matter, which may be regarded therefore as an essential part of the secretion; in some herbivorous quadrupeds it has a green hue, and the colouring matter by which this is given, appears to be identical with that contained in the vegetable tissues on which they feed."—*Carpenter.*

walls of which have coalesced with each other and with the inter-cellular substance so as to form the mass of the cartilage of the bone, then the radiating canaliculi must be regarded as canals, extending from the cavities of the cells through their thickened walls, and would be analogous to the pore-like canals of some vegetable cells. But if the osseous corpuscles are the cells themselves, and not merely their cavities, (the whole substance between the corpuscles being intercellular tissue), in this case the canaliculi will probably be radiating prolongations of the cells extending into the inter-cellular substance. According to this latter view, which *Schwann* regards as the more probable, the canaliculi would correspond to the processes given off from some cells of plants."

The *Nervous* and *Muscular* tissues also are primarily evolved, in the early Embryo, as a mere agglomeration of *cells*. These cells by apposition and coalescence first form tubes; and then these tubes are subsequently filled with the substance peculiar to each, and become so very closely and intimately coherent that the tissues, when fully developed, exhibit no appearance of their original cellular structure. The ultimate reason for such a transformation is thus ingeniously propounded by the talented author of the Cyclopædia:

"It is easy to see that, so long as cells remain isolated from each other, they exist as so many distinct individuals—performing, it may be, the very same operations—but doing this independently of one another. Now the very nature of the *Animal* (contrasted with the *Organic—Rev.*) functions requires that the actions of the several parts of the tissues, which perform them, should be the most intimately connected; thus, when an impression is made upon any part of the surface of the body, it has to be *instantaneously* communicated to the *Brain*; or an effort of the will, acting through the brain, has to call into *immediate* operation a large amount of muscular tissue. We could not conceive these functions to be performed by a number of isolated *cells*; and we find in fact that the muscular and nervous tissues are composed of *tubes*, containing substances that are peculiar to each respectively. These tubes originate like the *ducts* of plants, in cells laid together end to end, the partitions between which have broken down; and the deposits that are found within them, on which their peculiar properties seem to depend, are formed at a subsequent time."

IV. In the last division of our subject, we intended to point out the several applications that have been made of the Cell-doctrine to pathological inquiries, and to the illustration of various diseases. Neither space nor supply of materials permit us to enlarge at present upon this most interesting topic. All that we can do is simply to notice those morbid states and changes of the body which (it has been supposed) are produced by the presence of extraneous, so to speak, and abnormal *cells*, either in a part or throughout the system generally.

From the researches of that distinguished physiologist, Professor *Muller*, it appears that such growths as *Cancer, Fungus Hæmatodes, Sarcoma, &c.* are essentially cellular or vesicular in their structure; the morbid *cells* being produced by a transformation of the natural and normal cells of the part into others of a new and deleterious character. These morbid cells seem to be endowed with the same power of self-Reproduction, which we have shown to belong to the usual formative cells of all organised bodies; and indeed the very character of *malignancy* of the diseases in question is,

in all probability, owing to the tendency which such cells have to multiply and to make their appearance in another part of the body, is removed from their original *foyer*. This pathological doctrine cannot be considered as altogether novel; for it is only a modification—although unquestionably an important one—of the opinion of Drs. *Adam* and *Baron*, who attributed the formation of *cancer* to the presence of an hydatidiform body, which they called *hydatis carcinomatosa*, and of that of Mr. *Carmichael*, who supposes that it is owing to the development of a body possessing an independent existence in those parts of the frame, whose vitality has become enfeebled, and the organised matter of which begins to be decomposed. The following observations on this subject by Dr. *Carpenter*, well deserve an attentive perusal.

"The presence of cells or vesicles containing nuclei, the walls of which cells are easily separable from one another, is an almost constant characteristic of these growths; and thus we may regard them as not having advanced far in the process of organization. These cells frequently become elongated, so as to present the spindle-form; and, when such cells are regularly arranged in clusters, the tissue will possess more or less of a fibrous character. In no instance has the complete transformation of the cell *itself into* a bundle of fibres been observed; so that the whole tissue may be regarded as developed upon the low and simple type of the vesicular tissue of the lower plants and animals. Each cell enjoys, as it were, a separate individuality, so long as it is supplied with nourishment prepared for its assimilation; and effects the multiplication of its kind by the development of new cells of its own nature within itself." After alluding to the analogy that may be traced between the formation of these semi-*organized* cancerous Cells and that of the simple Fungi, which are not *unfrequently* generated in the interior of living animal and vegetable structures, he proceeds to observe: "There can be little doubt that a cancerous tumor of any size may be developed from a single cell; and it seems very difficult to draw the line which shall separate such independent growths, on the one hand, from the ordinary tissues of the body (in their primordial condition,) and, on the other, from structures really parasitic. It is interesting to remark that blood-vessels cannot be traced in these morbid productions at an early period of their formation, but that they make their appearance, as in the normal development of the tissues, at a later date; so that the disordered tendency cannot originate in the walls of the vessels (as some have thought,) but must commence in the blood itself."

Dr. Klencke of Brunswick has recently published a work, with the view of showing that the contagious character of many diseases is owing to the direct transmission of morbific *cells*—which seem to possess a semi-individual life—from one person or animal to another. After alluding to the opinion of Müller and Langenbeck that *Cancer* is communicable by the inoculation of carcinomatous matter, he mentions that he has succeeded, in a similar manner, in proving the contagiousness of *Melanosis*. The experiment was performed on a horse; some of the cellules, found floating in the black pulpy mass of a melanotic tumor, were inserted beneath the skin; and the result was, the production of a growth similar to the original one. Dr. K. says, that various *Condylomatous tumors* also, as well as *Ozæna*, *Coryza*, &c. are transmissi-

ble in this way; and he goes so far as to state, that "the cellules of a recent *Coryza* are very different from the confervæ of an *Ozæna*, and that, as the disease declines, the cellules gradually disappear and become replaced by sporules of Confervæ!" He mentions, too, that he has detected the morbific cells of *Malignant Carbuncle* in the yellow-coloured discharge that flows from the gangrenous sores; and those of *Hydrophobia*, not only in the salivary glands of dogs affected with rabies, but also in a wound caused by their bite. The proximate cause of *Vaccinia* and *Variola* is, according to his researches, the existence of morbid Cells in the circulating fluid; and the severity of these diseases is, in general, proportionate to the number of the cells that are developed. Probably not a little fanciful conjecture is mixed up with these speculations of the learned doctor; but their simple announcement will be of use, by directing the attention of pathological microscopists to the changes, alike of the fluids and the solids, in various diseases.

Lastly, we may mention that the formation of *Tubercles* has been supposed to be dependent upon some lesion, or defect, in the structural transformation of the cells of the affected tissue. From the general debility of the nutrient powers, the normal cells are (it is imagined) only imperfectly converted into the parenchyma or proper substance of the part where the tubercles are developed; and thus, instead of forming a constituent portion of its organisation, they act as so many foreign and irritating bodies disseminated through it. Their appearance under the microscope gives considerable weight to this view of their origin; for, when examined with a moderate magnifying power, they are found to consist of half-formed *cells*, fibres, &c. associated with a granular matter that resembles coagulated albumen. If this pathological suggestion be correct, how much must depend on a judicious invigoration of the nutrient and reparative energies of the system, if we hope to arrest the progress of this fatal malady!

With this remark, we draw the present article to a close. All that now remains to do is to notice the several works, which we have brought under review.

Mr. *Owen's* lectures present a minute and, we need scarcely say, a faithful description of the Anatomy of the various families of the great Invertebrate class of animals. A few physiological remarks are introduced here and there; but certainly not so frequently as the reader might desire. The present, the fifth, Edition of Dr. *Quain's* Anatomy has already been deservedly stamped with very marked public approbation. The introductory chapters, by Dr. *Sharpey*, contain a well-written summary of the Cell-formation doctrine, as applied to human Anatomy. A more elaborate account of the same subject will be found in the work of Dr. *Todd* and Mr. *Bowman*; but unquestionably by far the ablest exposition of all its most interesting and instructive details is that given by Dr. *Carpenter* in his Popular Cyclopædia. This is a work of uncommon merit, and ought to be very widely known. Medical men will do well to read it first attentively themselves, and then recommend it to the perusal of all their *lay* friends that are persons of education and intelligence. The various descriptions are remarkably clear and graphic;—and the wood-cuts are among the very best which we have ever seen. Altogether, the publishers, as well as the

talented author, deserve much praise for this beautiful volume, and we trust that the extent of its sale will testify the public's approval of their meritorious exertions.

MEDICO-CHIRURGICAL TRANSACTIONS, PUBLISHED BY THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY OF LONDON. Second Series, Volume the Eighth. 8vo. pp. 425. London, 1843.

THE volume before us is characterised rather by the number than the length of the Papers it contains. Hints, remarks, observations, cases, take the place of essays, and of bulky contributions. This is to be expected. A volume which appears twice in the twelve months, must be so filled, or not at all.

The bill of fare on this occasion is a long one. We have—

1. Case of paralysis without loss of sensation, from disease of the cervical medulla; by John Webster, M.D. 2. Case of bronchial calculus, with observations on disease of the bronchial glands; by John Charles Graham Tice, M.D. 3. On congestive pneumonia consequent upon surgical operations, diseases, and injuries; by John Erichsen, Esq. 4. Researches into the connexion existing between an unnatural degree of compression of the blood contained in the renal vessels, and the presence of certain abnormal matters in the urine; by George Robinson, Esq. 5. An account of an unusually large biliary calculus voided from the rectum; by James Arthur Wilson, M.D. 6. On fatty degeneration of the arteries, with a note on some other fatty degenerations; by George Gulliver, Esq. F.R.S. 7. Remarks on the calculi in St. George's Hospital; by Henry Bence Jones, M.A. 8. Cases of ulceration of the internal jugular vein communicating with an abscess; by W. Bloxam, Esq. 9. Some account of an hysterical affection of the vocal apparatus, with several cases; by Oscar Clayton, Esq. 10. Case of erectile tumor in the popliteal space,—Removal; by Robert Liston, Esq. F.R.S. 11. Two cases of osteo-sarcoma of the thigh bone, requiring amputation of the limb in both instances; by S. A. Frogley, Esq. 12. Remarks on cancrum oris and the gangrenous erosion of the cheek of Mr. Dease and Dr. Underwood, and more particularly on the efficacy of the chlorate of potash in the treatment of those diseases; by Henry Hunt, M.D. 13. Case of ulceration of the pulmonary artery into an abscess of the lungs. With remarks by John Dalrymple, Esq.; by William Crowfoot, jun. Esq. 14. Cases of strangulated hernia reduced "*en masse*," with observations; by James Luke, Esq. 15. Observations on the medicinal properties of the Cannabis Sativa of India; by John Clendinning, M.D. F.R.S. 16. On the sugar in diabetic blood; by Henry Bence Jones, M.A. 17. A few observations on encysted hydrocele; by Robert Liston, F.R.S. 18. Some account of an epidemic which prevailed at Teheran, in the months of January and February, 1843; by C. W. Bell, M.D. 19. On the nature

of the ossification of encysted tumors; by John Dalrymple, Esq. 20. On the anatomical characters of some adventitious structures, being an attempt to point out the relation between the microscopic characters and those which are discernible by the naked eye; by Thomas Hodgkin, M.D. 21. An account of a case in which a foreign body was lodged in the right bronchus; by Sir B. C. Brodie, Bart. F.R.S. 22. Second series of observations on the pathology of the ear, based on one hundred and twenty dissections of that organ; by Joseph Toynbee, F.R.S. 23. On the effects of rickets on the growth of the skull; by Alexander Shaw, Esq. 24. On the presence of spermatozoa in common hydrocele; by E. A. Lloyd, Esq. 25. Statistics of Bethlem Hospital; with remarks on insanity; by John Webster, M.D.

The first case to which we shall advert is—

I. Case of Paralysis, without Loss of Sensation, from Disease of the Cervical Medulla. By *John Webster*, M.D.

The patient was a gentleman, aged 36, of a muscular frame, who had enjoyed good health, with the exception of headaches, until a few years before his death. In 1836, he suffered from a phagedænic ulcer on the left leg. It broke out again in 1838, and was followed by a large chronic ulcer on the posterior part of the pharynx. The patient had never had any syphilitic affection. His health now suffered, and a severe domestic affliction contributed still further to depress it.

In the Autumn of 1839, Mr. G. began to suffer from almost constant pains in the head, occasionally very severe, and accompanied by sickness and prostration of strength. In January, 1840, slight epileptic attacks supervened, with a pulse as low as 35 or 40. In March, the epileptic attacks were more pronounced and were followed by violent spasmodic contractions of the lower extremities. In talking, Mr. G. often repeated several times the principal word in a sentence, or used a different one from what he wished to employ, being aware, the while, of the error.

In the Summer of 1840, Mr. G. complained of much weakness in the back and loins, with pain in the head and nape of the neck. He soon afterwards became unable to walk steadily without support; and, to use the patient's own words, 'he felt as if his body were cut in two, and the lower half falling away from the upper.' Both hands and arms now became very weak, and were soon nearly powerless; and he also complained of considerable pain about the fourth cervical vertebra, increased in severity on merely bending his head backwards; but this sensation felt however less painful when rotatory motion of the neck was only attempted. In the Autumn, he improved so much as to be able to walk with a staff, and even visit his friends. But after dining out on Christmas-day, and ineffectually attempting to walk home through the snow, the symptoms returned in an aggravated form. He entirely lost the use of the legs and arms, then of the muscles of the abdomen and chest, the respiration being solely carried on by the diaphragm. Very active purgatives and strong enemata were required for the bowels, the frequent employment of the catheter for the bladder. The sense of touch was even

exaggerated over the body, a draught of cold air being felt with intensity. Frequently, Mr. G. complained of intense heat of the surface, when to a by-stander, it seemed cold, and at other times, he had alternations of heat and cold, his skin appearing, the while, to remain of the natural temperature. If a foot or toe were touched, he was aware of the exact spot, and spasmodic twitchings of the limb, with much pain, were occasioned. These twitchings were latterly so violent, as almost to throw the patient off his couch.

Towards the last, the urine deposited a thick ropy sediment, and was passed in drops involuntarily; offensive, watery fæces being voided in a similar manner. On the 22d of July, 1842, the patient died exhausted, retaining his intellectual faculties to the last.

All treatment was ineffectual, and the patient having been under the hands of Dr. Chambers, Dr. Seymour, Dr. Webster, Sir. B. Brodie, and Mr. Tatum, is a sufficient guarantee for every remedy likely to prove serviceable having been employed. Morphia, latterly, gave much relief.

Autopsy.—Body emaciated. Some effusion of lymph was found under the arachnoid membrane covering the left side of the brain, along with turgescence of that and the other hemisphere; both divisions being pale, and exhibiting a watery aspect, although their texture was firm and compacted. The ventricles of the brain seemed large, particularly the left; and about two ounces of serum were effused in these cavities; the foramen commune being at the same time larger than natural. The arachnoid tissue extending over the pons Varolii adhered to the parietal layer of that membrane; but no tumor, or any other change of structure, was found either in the brain or cerebellum, excepting that the latter organ appeared anæmic, and rather softer in texture than ordinary.

Nothing worth noting in the thorax. The kidneys were somewhat enlarged, anæmic, and exhibited marks of chronic inflammation on the internal membrane of the pelvis and infundibula. The omentum and some of the small intestines adhered to the bladder, the muscular coat of which was greatly thickened, and its cavity so contracted as not to exceed that of an ordinary-sized walnut.

"Having carefully laid open the vertebral column, throughout its whole length, the theca, corresponding, to the three or four lower cervical vertebræ, was found to be much distended; and on being cut into, the arachnoid cavity, with the sub-arachnoid tissue, appeared filled with lymph, which evidently had been some time effused; as the membranes were thereby united to each other, and also to the cord. On making a more minute examination of the parts, the adhesions of the membranes to the chord were discovered to be much firmer at its anterior, than posterior portion; indeed they were actually so strong, as to be inseparable from the medulla without rupture. At this particular part, the medulla also appeared larger than usual, felt soft and pulpy to the touch, and on being divided by the knife, its substance seemed to be in an almost diffluent state, infiltrated with serum, but exhibiting a natural colour. For the extent of half an inch above the point just described, the cord had a dusky red tinge, appearing, however, of the ordinary consistence. In the anterior and posterior columns, not much difference was observable to the naked eye, at the first superficial examination of the diseased part of the medulla; although both divisions of the cord seemed considerably softened, infiltrated and disorganised, particularly in the posterior columns; whilst as well above, as below the affected portion, the medulla was healthy, and quite natural in appearance." 14.

A portion of the cord was submitted to Dr. Todd, of King's College, for the purpose of microscopical examination. The following is his Report:—

"'The portion of spinal cord submitted to me by Dr. Webster, appears to consist of the greater part of the cervical segment. I find great destruction (from softening) of the medullary substance of the posterior columns, especially that of the right side; the antero-lateral columns seem to have been also the seat of the softening process to a less degree, but I do not find that they have suffered any loss of substance. In examining the softened parts by the microscope, I detected very few of the proper nerve-tubes; and those which I did observe, were much altered from their natural appearance; they had become opaque, and had assumed an indistinctly fibrous aspect. I was unable to find any trace of gray matter. The posterior horns must have shared in the great destruction of the posterior columns, and probably the anterior ones experienced a similar fate. It is right, however, to observe, that the specimen had been preserved some time in spirits, before it came into my hands. I found throughout the diseased part, numerous small scales, (cholesterine?) such as are very commonly met with in portions of the nervous centres preserved in spirits.'

"Dr. Todd then makes the subsequent very important remarks:—'I consider this case of the greatest physiological interest, as affording unequivocal proof, that the posterior columns cannot perform the office assigned to them by some physiologists, namely, that of conducting sensitive impressions to the brain, or at least, that they are not the only channels of this communication. It is also important in an anatomical point of view, as showing that the posterior roots of the nerves are independent of the posterior columns of the spinal cord; for, although the latter were destroyed to so great an extent, the former did not appear to have suffered in any degree.'" 16.

As Dr. Webster observes, the preceding case is not calculated to render our notions on the functions of the respective columns of the cord much more clear or satisfactory than they were before. We must look to the further collection of facts for what light is to be thrown upon the subject. Our readers may probably remember that, in the volume of the Medico-Chirurgical Transactions published in 1840, and noticed in this Journal,* was a case reported by Mr. Stanley, in which the power of motion in the lower extremities was lost. In that case the posterior columns of the cord were diseased. The two cases taken together square indifferently with our received opinions.

II. Case of Bronchial Calculus, with Observations on Disease of the Bronchial Glands. By *John Charles Graham Tice*, M. D., Assistant Surgeon 8th (King's) Reg't, of Foot.

Mr. J. A. aged 48, quarter-master, began to complain, Sept. 7, 1842, of pain in the right side, slightly affecting respiration. Pressure over the liver caused great uneasiness, the tongue was furred, the bowels were constipated, and there was a most disagreeable taste, in the mornings. Mercurial purgatives and bleeding were productive of little service, the pain of liver and dyspnœa increasing, with frequent paroxysms of cough. The fœtor of breath augmented, and the horizontal posture was attended by a sense of suffocation. Bleeding, leeching, calomel, squills, antimony, were

* January, 1841.

all employed. But the cough and difficulty of breathing grew aggravated, and the only position bringing any thing like ease, was leaning forwards, holding both knees.

Percussion and Auscultation elicited no disease of either heart or lungs. The patient now stated, that, "about three weeks prior to his illness he had partaken of a pear, and while part of it was passing down the œsophagus, he experienced a sense of soreness, and thought it remained in his chest.

"He pointed to a spot, a short distance below the clavicle, and a little to the left of the sternum. He added, that from that day up to the present, whatever he has swallowed, liquid or solid, appears to him not to pass beyond that spot.

"It was soon after the above event that he first noticed the fœtor of his breath, which he represents, at times, as most intolerable."

In spite of all treatment, the cough became more frequent, and the paroxysms of longer duration, the dyspnœa, on assuming the recumbent posture being more alarming, with a sense of syncope at intervals. Dr. Wm. Stokes, who saw the patient, thought the disease was chiefly nervous and spasmodic irritation of the respiratory organs.

Soon after this, the breathing grew stridulous, the cough laryngeal, the horizontal position untenable. Between the thyroid and cricoid cartilages, the air passed as over a roughened surface. On the 11th Oct. laryngitis was suspected to have set in, and the symptoms increased in violence. After a distressing night, he was seized on the morning of the 18th October with a severe fit of coughing, which was at length subdued by help of an anodyne mixture; soon after taking which, he fell into a disturbed sleep. He became comatose after this, and, at last, after a deep inspiration he suddenly expired, six weeks having elapsed since the commencement.

Autopsy.—Right lung rather dark coloured and gorged with blood.

"On raising it and dividing its attachments, the knife suddenly entered a *cavity*, of the size of a pullet's egg, from which a most offensive odour was emitted. This cavity was formed by an abscess in a mass of enlarged bronchial glands, situated at the bifurcation of the trachea. It opened into the right bronchus, ulceration having destroyed a large portion of that tube. The inferior margin of the ulcerated opening was thickened and elevated: on the other side, the abscess communicated with the left bronchus, by an aperture of about half an inch in diameter, having inverted and thickened edges. Posteriorly, the abscess had made its way into the œsophagus by ulceration. The opening into that canal was capable of admitting a large-sized bougie. The abscess contained a quantity of calcareous matter, some very hard, some of a soft consistence. The whole, when first examined, was of a dark melanotic aspect. A triangular portion of the hard calculous matter had firmly wedged itself into the aperture communicating with the right bronchus.

"The mucous membrane in both tubes (above the ulceration) was marked by a deep blush, which extended nearly as high as the thyroid cartilage. A small ulcer was discovered towards the inner edge of the descending cornua of the thyroid cartilage on the right side." 25.

No other disease of any organ. Some of the calcareous mass, analyzed by Dr. Barton, was found to consist of phosphate of lime.

A careful perusal of the above case will be of service in tending to inform the reader of the nature of the symptoms, and what they indicated. The case is, itself, an instructive one.

III. On Congestive Pneumonia, consequent upon Surgical Operations, Diseases, and Injuries. By *John E. Erichsen*, Esq.

Mr. Erichsen's object is to direct attention to that form of Pneumonia, consequent on surgical operations and injuries, and *not* dependent upon the absorption of pus. He first points out the similarity of appearances between Pneumonia, in its first stage, and mere passive congestion of the lungs.

"The anatomical characters of the first stage of inflammation of the lungs, more especially when that disease assumes an asthenic type, are in all respects similar to those of mere passive congestion of those organs. The lungs, in both cases, being heavy from sanguineous engorgement, presenting externally a livid violet hue, mottled with spots of a dark red, or purple colour, and preserving the impression of the finger, as if œdematous. When pressed upon, they will be found to be more compact and solid than natural, scarcely crepitating. When cut into, a frothy, spumous, reddish fluid exudes in considerable quantity, and the pulmonary tissue will, at the same time, be found to be altered in its consistence, breaking down readily under even moderate pressure of the finger into a grumous pulpy mass. This friability of the tissue of the lung has been, by many, supposed only to occur in those congestions of that organ which were of an inflammatory nature, but it has been proved by the observations of Andral, and others, to be of no value as a diagnostic mark in distinguishing these from the mechanical engorgement that frequently supervenes but a few hours before death, and which, when it occurs, is probably the immediate cause of that fatal event." 31.

To avoid all source of fallacy, therefore, he considers as Pneumonia only those cases in which either one lung alone was affected, or some unequivocal evidence of inflammation existed, as hepatization or splenification of the pulmonary tissue, recent lymph or serum in the pleural sacs, or marked evidences of inflammation of the bronchial mucous membrane.

There is appended to the Paper, a Table of the Condition of the Lungs, in 62 cases of death, after surgical operations and injuries. These 62 cases arrange themselves under four classes:—those in which there were evident signs of Pneumonia, 28 in number;—doubtful cases 11 in number;—cases in which the lungs were found more or less diseased, but not inflamed or congested, 9 in number;—cases in which the lungs were healthy, 14 in number.

"Thus it will be seen that on examining the lungs of sixty-two individuals who had died from various surgical diseases, operations and injuries, there were found marked evidences of Pneumonia in twenty-eight, or forty-five and one-tenth per cent. of the whole. Of the remainder it was doubtful in eleven whether the congestion that was met with was of an inflammatory or passive character. In nine others, the lungs were more or less diseased, being tuberculous in three cases, bronchitic in four, œdematous in one, and gorged with fluid blood in another: and in fourteen cases only, or little less than a quarter of the total amount—22·5 per cent.—were these organs healthy." 33.

In the 28 cases of Pneumonia, there was solidification in 17. In the remaining 11 cases, the Pneumonia was in the first stage. In three cases, the right lung only was affected—in three the left lung only—and, in twenty-two, both lungs; though not to the same degree. In only two cases was the upper lobe found inflamed.

This form of Pneumonia is occasionally of a sthenic, more frequently

of an asthenic character, like what is called the typhoid Pneumonia, where a passive congestion is superadded to the inflammatory state. "The blood, in this disease, stagnates in the lungs under the influence of certain causes, and a degree of irritation being at the same time set up, some inflammatory action is excited in the already congested part, which, however, is of a passive type, not being characterised by the formation of those secondary products that are the usual consequences of active, sthenic inflammation."

Among the causes disposing to Pneumonia, after injuries and operations, Mr. Erichsen gives first rank to the recumbent posture leading to congestion in the back parts of the lungs—and the debility, &c. produced by suppuration, hospital air, and so forth. Age, too, exerts an influence :—

"The average age of the patients in whom inflammation of the lungs was found, was	44·2	years
Of the doubtful cases	39·4	—
Of the cases in which no inflammation or congestion of those organs occurred	35·9	—

So that the average difference in age between those cases in which Pneumonia occurred, and those in which it did not, amounted to 8·3 years." 38.

The recumbent posture, of itself, cannot go for very much. Irritation, fever, and suppuration, exert a considerable influence—long residence in a hospital the same. In the preceding cases, the average times that the patients lived, after admission into the hospital, were as follows :—

"Cases in which the lungs were inflamed ..	20·7	days.
Doubtful Cases	12·3	—
Cases in which the lungs were found diseased, but not inflamed	22·7	—
Cases in which the lungs were healthy	1·6	—

"The reason of the high average of the time that those patients lived in whom the lungs were found diseased, but not inflamed, is, that of ten in that class, three died of phthisis on the thirtieth, fifty-fourth, and seventieth day respectively, after admission into the hospital. If these cases are excepted, we shall find that the remainder lived, on an average, only 8·4 days." 41.

After injuries, or operations, the surgeon should be on the watch for this affection. The stethoscope affords valuable aid, but from the circumstances of the case it is not always easy to apply it to the back of the chest, where the mischief takes place.

On treatment, Mr. Erichsen has little to say that is satisfactory. It is a more hopeful proceeding to attempt prevention than cure. Mr. E. suggests the changing, if possible, the recumbent position of the patient.

"The energies of the nervous system should be supported and increased by such stimuli and tonics as the patient may be able to bear; as, for instance, carbonate of ammonia, decoction of senega, quinine, and, in extreme cases of depression, wine and brandy. The inflammatory condition of the lungs should, at the same time, be combated by means of calomel, combined with minute doses of opium, and by counter-irritation in the form of dry cupping, blistering, stimulating embrocations, or turpentine epithems." 44.

Bloodletting is out of the question.

As prophylactics, free ventilation—warm clothing—occasional changes, if possible, of position—the starched bandage, to enable patients to get about as soon as possible, are the means advised by Mr. Erichsen.

IV. Researches into the Connexion existing between an Unnatural Degree of Compression of the Blood contained in the Renal Vessels, and the Presence of Certain Abnormal Matters in the Urine. By *George Robinson*, Esq.

Mr. Robinson has instituted an interesting series of experiments on the kidneys of rabbits, with the view of determining the physical results of compression of the blood.

One class of experiments consisted in applying a ligature on the renal vein, so as completely or partially to prevent the return of blood from it. This, of course, would lead to great congestion of the kidney, and to compression of the blood contained in it.

A second class of experiments consisted in the removal of one kidney, and ligature of the aorta below the other. By this means the arterial current would be directed with more than usual force on the remaining kidney.

For the experiments themselves we must refer to the Transactions, and content ourselves with a summary of Mr. Robinson's conclusions. He thus alludes to the two conditions by which the compression of the blood in its vessels is produced and regulated:—

"This compression is altogether dependent upon the co-existence and co-operation of two essential causes, each of which will, in different individuals, vary much in its amount of activity or degree of completeness.

"The momentum of the arterial blood arising from the contractions of the ventricle constitutes the active force from the operation of which the compression takes place. But as a counter resistance is required before an intense degree of the latter state can occur, it is only when some extraordinary obstruction to the free passage of the blood *through the smaller vessels* exists that the effects of an undue compression of that fluid are perceptible.

"It follows, therefore, that the momentum being equal in a number of cases, the intensity of the compression of the blood will be proportioned to the completeness of the obstruction; and, on the other hand, the impediment or obstruction being equally complete, the degree of compression will then be commensurate with the amount of the momentum.

"The whole of the preceding experiments, if carefully considered, will, I think, support this statement.

"They also prove—

"1. That simple compression of the blood in its smaller vessels will, in a direct ratio to the degree of intensity of that compression, cause the exudation of an albuminous fluid, of coagulating lymph, or the extravasation of blood. Its immediate effects, therefore, precisely resemble those of inflammation: and as it is well ascertained that both the essential causes of undue compression (viz. an obstruction or impediment to the flow of blood through the vessels of the inflamed part, and excessive action of the heart,) co-exist in that disease, it seems but reasonable to infer that the primary effects of inflammation, being identical with those of undue compression of the blood, are the mere consequences of that physical cause.

"2. That there is no relation between the composition of the effused matters and the extent of the dilatation of the coats of the vessels, as measured by the quantity of blood they contain." 64.

He presents a Table, corroborative of this position; and he repeats his belief, that the effusion of albumen and lymph through the coats of the vessels of the living body is dependent on and regulated by the degree of the compression of the blood contained within those vessels. In fact, he

is a decided advocate for the application of ordinary physical laws to the explanation of the healthy and morbid phenomena of the living body.

V. On Fatty Degeneration of the Arteries, with a Note on some other Fatty Degenerations. By *George Gulliver*, Esq. F.R.S.

Mr. Gulliver, whose contributions to microscopical and pathological knowledge are well known, has been carefully examining the deposits, atheromatous or steatomatous, between the internal and middle coats of arteries, and the opaque deposits on or in their internal membrane. The results of his investigations may be briefly summed up in the following manner:

"1. The white or buff-coloured opaque spots of the inner membrane of the arteries are of a fatty nature.

"2. The soft matter, which has been generally called atheroma, and which often collects between the inner and middle coats, is also fatty.

"3. The fatty matter is frequently found in the substance of both these coats.

"4. A fatty degeneration of the tunics of the arteries is generally connected with that state of them which is the most frequent cause of aneurism, as well as of their obstruction, occlusion, or wasting, in aged people.

"5. The matter usually contains cholesterine and oleine, and often some margarine.

"6. The tunics of ossified arteries, as well as the bony plates, are often pervaded by the fatty substances just mentioned." 90.

These statements are substantially confirmed by the observations of Bizot, Cruveilhier, and Gluge, mentioned in a work on Pathological Anatomy, by Dr. Hasse, and referred to in a postscript by Mr. Gulliver.

Mr. G. is of opinion that other tissues are weakened and obstructed by the abnormal presence of fatty matter.

"In wasting of the testicle and when the functions of that gland are impaired by lingering diseases or old age, the seminal tubes are often more or less obstructed by fatty matter, which occurs in free globules, and in more equal sized and minuter molecules, generally aggregated into comparatively large rounded or irregular masses, nearly opaque, and of a brown or dull yellowish colour." 93.

In every variety of consolidation of the lungs, more or less fatty matter will be found. In gangrene of the lungs, and in inflammation of the black lungs sometimes seen in old persons, fatty globules are generally rather numerous. The fatty condition of the liver, so familiar in phthisis, has usually been considered a consequence of impaired respiration. But the quantity of fatty matter in that organ has not seemed to Mr. Gulliver to be regularly increased in proportion to the diminution of the special function of the lungs. In children, cut off by various chronic diseases, but free from pulmonary consumption, the liver is not uncommonly surcharged with fatty matter.

VI. Remarks on the Calculi in St. George's Hospital. By *Henry Bence Jones*, M.A. Cantab.

The paper before us is the result of an analysis of a collection which

now consists of 233 divided calculi not including any duplicates, and 9 undivided.

Dr. Jones's first object is to show that when the urates are deposited there is reason to suppose that little or no free acid can exist in the urine, and that consequently alkalies, however useful they may be in other respects, are not requisite in such cases to remove acidity.

His next object is to point out in what proportion of cases in this museum acid injections might have dissolved or partially removed the calculus.

"Of those calculi which have been divided,

46 are simple, that is, consisting throughout of one substance.

40 are compound, consisting throughout of a mixture of two or more substances.

147 are alternating.

Of these alternating calculi,

83 have a simple nucleus.

58 have a compound nucleus.

"If, instead of looking at the calauli from this point of view, we examine them for the purpose of seeing how often the same substance forms either a whole calculus, or occurs in a well marked layer, we shall find that in this collection there are at least 450 distinct deposits. These I have arranged in the accompanying Table, from which it will be seen that

135 times uric acid occurs either alone or mixed with other substances.

222 — urate of ammonia, ditto.

163 — oxalate of lime, ditto.

139 — the phosphates, ditto.

80 — urate of ammonia with oxalate of lime."

The Table we must omit. Dr. Jones goes on to remark :—

"In order that a deposite of urate of ammonia or of uric acid, with urate of ammonia, may take place, it is necessary that an excess of urate of ammonia, as compared with the quantity of water, should exist in the urine; yet this is not the case as regards a deposit of uric acid alone. It will be shown that for uric acid to be precipitated, no other unnatural state need be present except that of some free acid passing in excess out of the system. In this, perhaps, we may find a partial explanation of the frequent occurrence of uric acid calculi." 103.

Urate of ammonia appears to be increased in the urine from very slight causes. We cannot be surprised at its forming so frequent a constituent of calculi.

Oxalate of lime exists with uric acid, with urate of ammonia, and with the phosphates. It occurs 80 times in 450 with urate of ammonia, forming a distinct deposit. There is, indeed, a diathesis, in which urate of ammonia is formed at the same time with oxalate of lime. In the red deposit of rheumatism and of indigestion, he has found octohedral crystals of oxalate of lime, sometimes in large quantities.

Dr. Jones agrees with Dr. Prout, that urate of ammonia exists in the urine in the state of health. It appears that free acid and urate of ammonia cannot long exist in the same solution, and that whilst urate of ammonia only is deposited, no free acid can be present, although litmus paper may be reddened. It seems, therefore, most probable, that, when uric acid alone is deposited, much free acid must have been thrown out by the kidneys, and that thus all the urate of ammonia, which would otherwise

have been present, must have been decomposed. To determine the frequency of this state of secretion, we must observe how often whole calculi consists of uric acid, *and* how often whole layers of the substance occur. This was 97 times in 450.

A small quantity of acid only partially decomposes the urate of ammonia in the urine; when, therefore, urate of ammonia is found mixed with uric acid, but little free acid is secreted by the kidneys. Such a mixture was found to occur in 38 layers. Hence in 38 states out of 450, but little free acid was thrown off in the urine.

"When we find urate of ammonia alone, without any uric acid, forming a calculus or layer, we must consider that no free acid was removed by the kidneys, although the secretion may have been acid to test paper."

"The presence of the phosphates in a deposit generally implies a neutral or alkaline state of the urine. If such be the case, and the presence of uric acid implies an acid state from free acid, it would follow that uric acid and the phosphates must exist very rarely in the same deposit. When the calculus has consisted chiefly of the phosphates, I have not once found uric acid to exist with it. When traces of this acid have been present, careful examination showed it was in combination with some base. And when the calculus consisted chiefly of uric acid, the small ash which sometimes remains will rarely be found to consist of the phosphates.

In the above Table the phosphates occur 139 times. Hence 139 times in 450 the urine must have been neutral or alkaline to test paper.

"If then phosphates indicate neutrality or alkalescence, and uric acid indicates free acid in the urine, we may conclude that the deposit of oxalate of lime, as it occurs in the above Table with uric acid, with urate of ammonia and with the phosphates, is independent of acidity and alkalescence, and that its presence in a layer does not indicate any particular state of the secretion.

"Now, as such layer implies a certain state of the urinary secretion, the 450 layers may be taken to represent 450 states of the urine.

"139 of these were neutral or alkaline, as so many times the phosphates are found to occur.

"311 were feebly or strongly acid to test paper.

"Of these 311, in 97 much free acid was passing from the system, as so often layers of uric acid occur.

38 but little free acid was thrown out, as so often mixed layers of urate of ammonia and uric acid appear in the Table.

117 no free acid passed, although litmus was reddened.

59 the state of the secretion is unknown, the oxalate of lime not offering any indication of it.

"Omitting these 59 oxalate of lime, there are then 117 states in which no free acid is passing from the system, and 135 in which little or much free acid was thrown out. From this it appears that in 252 cases of the uric acid diathesis, there were 117 in which no free acid was passing, and in these, alkalies would be of no benefit, so far as neutralising free acid in the urine is concerned; that is, in nearly every second case of the uric diathesis, there was but little if any free acid in the urine to be neutralised.

"In only 97 cases out of 252 was there much free acid secreted; or only twice in five cases were alkalies very necessary to remove the acidity of the urine; though in other cases these medicines might have been beneficial in some other respect." 107.

We arrive at the last subject for consideration—the cases in which acid injections might be serviceable.

"In 40 cases the phosphates or the phosphates and carbonates form the last layer.

"In 7 cases the whole calculus consisted of fusible deposit.

"In 5 cases the whole calculus consisted of phosphate of ammonia and magnesia.

"In these 52 cases out of 233, the calculus might have been lessened by the injection of dilute acids, and in 12 out of these the whole calculus might have been removed. This supposes however that in all these cases the calculi were in the bladder, and not in the kidneys, on which there is no satisfactory historical evidence.

In addition to these 52 cases, there are 6 calculi which consist entirely of urate of ammonia and fusible deposit, and 19 in which fusible and urate of ammonia form the outside layer. In these cases, most probably, any acid injection would dissolve the fusible and decompose the urate of ammonia, and thus disintegrate the calculus. So that altogether in 75 out of 233 a solvent might have assisted in the removal, although in 18 only out of 233, or about 1 in 13, could the calculus have been entirely removed. For this Sir B. Brodie has shown dilute nitric acid sufficient. Perhaps at some future time lactic acid, which possesses a peculiar power of dissolving the phosphates, may be found even more rapidly efficacious." 109.

VII. Case of Ulceration of the Internal Jugular Vein, communicating with an Abscess. By *William Bloxam*, Esq.

The subject of this unusual occurrence was a child, five years of age, who had a glandular abscess in the neck, after scarlatina. Discharges of venous blood took place from it, and, in spite of the most careful compression, proved fatal. The internal jugular vein was found to communicate with the sac of the abscess by an oblong ulcerated aperture, five lines in its long diameter.

VIII. Some Account of an Hysterical Affection of the Vocal Apparatus, with several Cases. By *Oscar Clayton*, Esq.

The cases occurred in a charitable institution for female children, from the age of nine to that of fourteen. The cases were seventeen in number. They began with feverish and ended with hysterical characters. The main feature was spasmodic cough, which, in a few weeks, changed to sounds varying in the different patients; in some resembling the double action of a large saw; in two, a shrill screaming expiration, following a quick catching inspiratory effort, much resembling the cry of a peacock; in another, the sound was such as is produced by blowing into a small metallic tube. In fact, it is difficult to conceive the dissonance and constancy of these sounds.

All kinds of remedies failing, the patients were sent home, when they recovered, but on coming together again, the same farce was re-enacted. An attempt was made to frighten the complaint away, by calling the girls together, and informing them that, if not better the next morning, a hot iron would be applied upon their throats. Most of them ran away, but the complaint was not got rid of. A hot spatula on the throat did some good: time did more.

A good sample of the imitative disorders that sometimes prevail among communities of young persons, more especially females.

IX. Case of Erectile Tumor in the Popliteal Space.—Removal. By *Robert Liston*, Esq., F.R.S.

Charles Reason, æt. 10, admitted into University College Hospital, Jan. 2, 1843, with a tumor in the right ham, of an oval shape, the long diameter being in the direction of the axis of the limb, situated in the upper part of the right popliteal space.

The swelling is about 3½ inches in length. The integuments covering it are not inflamed or discoloured, but perfectly natural. No pulsation is perceptible in it, nor can any '*bruit*' be detected by the ear. The pulsation of the artery can be felt in the popliteal space below the tumor, and those of the anterior tibial of the affected limb are natural. The tumor has a doughy, elastic feel, giving, when the limb is extended, a sensation much resembling the fluctuation that is produced by deeply-seated matter. When the limb is flexed, however, this sensation is less distinct, and the tumor has more the feel of an elastic solid mass, which is pretty moveable, and may be distinctly raised and separated from the bone.

The disease had first attracted attention eight years before. Various means, among others a seton, had been employed in vain. Mr. Liston supposing it a "tumor," possibly a fatty one, determined to cut it out.

An exploratory puncture was first made with a *knife*, which was half turned on its axis. There was venous bleeding to the extent of three ounces. Then another puncture was made elsewhere, and there was no bleeding.

"A free incision was made through the skin to the extent of about four inches. It was not adherent to the deeper parts. The fascia was now divided to an equal extent, and the surface of the tumor exposed. It had much the aspect of a fatty tumor, but its size was evidently much less than before the commencement of the operation. The opinion that the vein had been opened was now seen to be incorrect.

"The dissection was commenced on the outer side. The popliteal nerve was soon exposed, and the tumor, which was slightly adherent to it, carefully removed from it. After a troublesome dissection deep into the popliteal space, the tumor was found to be covered by muscle. The dissection was next proceeded with on the inner side, when it was soon found to be in like manner covered by muscular tissue, which was seen to be the semi-membranosus muscle embracing the tumor. During the manipulations necessary in this dissection the tumor has become much smaller than when first exposed on the division of the fascia. The substance of the semi-membranosus muscle was now cut into, and the morbid growth removed. The popliteal artery was not exposed in the course of the dissection. Only one vessel required ligature, and the patient was carried to bed, the wound being covered with lint dipped in cold water. A good deal of blood was necessarily lost during the operation, and the boy was somewhat faint." 124.

Bleeding occurred in the course of three hours, but was arrested by plugging the wound with lint. The wound ultimately did well.

"On making a section, the tumor was found to consist of a mass of most perfect erectile tissue as large as a hen's egg. This was completely surrounded

by condensed cellular and fatty matter. One part of the erectile tissue was more condensed than the rest, possibly where the seton had traversed it." 125.

Mr. Liston makes several remarks upon the case, the essence of which, however, consists in this—that an erectile tumor in the ham was mistaken for a fatty one. The circumstances were such as to render such an error excusable; they who have had anything to do with tumors, occupying deep situations, being too well aware of the uncertainty which attends their diagnosis. As in this instance, the history of the case sometimes rather misleads than assists.

We remember seeing one, in some respects, like this. The patient was a female of middle age, who had a tumor on the outside of the left thigh, about two-thirds down the limb. It looked like a fatty tumor, was considered to be one, and was operated on accordingly. It was found to be an erectile tumor in the substance of the vastus externus muscle. The tumor was not, as in this instance, circumscribed, and its extirpation was impossible. The patient died.

Mr. Liston mentions another interesting case, in which the sterno mastoid muscle was involved.

X. Two Cases of Osteosarcoma of the Thigh Bone requiring Amputation of the Limb in both Instances. By *R. A. Frogley*, Esq., of Hounslow.

These cases are extremely interesting. There is a great similarity between them. Their titles explain their nature, and it is only requisite to add, that the necessary operations appear to have been performed with equal ability and success by Mr. Frogley.

XI. Remarks on Cancrum Oris, and the Gangrenous Erosion of the Cheek of Mr. Dease and Dr. Underwood, and more particularly on the Efficacy of the Chlorate of Potash, in the Treatment of those Diseases. By *Henry Hunt*, M.D.

The main point of the Paper is to recommend the use of the chlorate of potass. This may be preceded, or not, by an aperient, according to circumstances.

"The quantity of the salt that I have been in the habit of prescribing varies from twenty to sixty grains, according to the age of the child, in divided doses in twenty-four hours, dissolved in water; the beneficial effect is often observed on the following day, almost always on the second day; the disagreeable fœtor soon lessens, the sores put on a healthy reparative action, the dribbling of saliva diminishes, and if there is mere ulceration it very speedily heals; if there is an eschar, it soon separates, and the sore granulates kindly. In no other disease did I ever see the beneficial effects of any medicine so soon manifested, as that of the chlorate of potash in these diseases. It is sometimes advisable, indeed necessary, that the aperient should be occasionally repeated."

Four cases are related—one by Mr. Cæsar Hawkins. They speak very favorably for the remedy, which is one that deserves a trial.

XII. Case of Ulceration of the Pulmonary Artery into an Abscess of the Lungs. With Remarks by *John Dalrymple*, Esq. By *William Crowfoot*, Jun. Esq. Beccles.

The following case, taken in connexion with that of ulceration of the jugular vein, transcribed a page or two back, is not uninteresting.

Mr. L. B. aged 36, of a consumptive family, had had symptoms of phthisis, more or less, from the Autumn of 1841 to November, 1842, when he was attacked with active hæmoptysis. The blood was always expectorated without effort. The physical signs were these—the ribs on the left side were contracted and flattened when compared with those of the right side, the upper part of the left side of the chest was dull upon percussion, and the respiratory murmur was absent in that situation; the right side presented no abnormal sound. At the end of a month he sank.

Examination.—Adhesions between the pleura pulmonalis and costalis of the left side—pleura pulmonalis of both sides, presenting the spotted appearance from strumous deposit. "The upper part of the left lung was entirely occupied by a large cavity containing about half a pound of grumous and coagulated blood; the walls of the cavity were composed of the parenchymatous structure of the lungs, condensed and solidified by pressure. Upon careful examination we found the pulmonary artery opening into the cavity at the distance of two inches from its bifurcation by an aperture as large as a crowquill."

XIII. Cases of Stangulated Hernia, reduced, "*en Masse*," With Observations. By *James Luke*, Esq. Surgeon to the London and St. Luke's Hospitals, and Lecturer on Surgery.

The occurrence which forms the subject of Mr. Luke's Paper is the reduction of the hernial protrusion, sac and all—an occurrence esteemed, perhaps, rarer than it actually is.

It would seem that five cases of reduction *en masse* have come under Mr. Luke's notice. A great similarity of circumstances appears to have attended three of them. "In each case, the hernia was oblique inguinal—and reduced by the patient's own efforts. In each the precise nature of the case was not known during life, and no operative attempt was made to afford relief; and in each the *post mortem* examination discovered a hernial tumor in the neighbourhood of the internal ring, reduced through the abdominal parietes, but lying exteriorly to their general peritoneal investment. On opening the tumor, in each its fundus lay below the level of the ring, towards the cavity of the pelvis, the contents being found in a state of sphacelus, and strictured by the neck of the sac, in which they were enclosed."

Mr. Luke relates the particulars of two cases, for which we must refer to his Paper, and proceed to the conclusions that he draws. The cases themselves, however, are extremely interesting.

Mr. Luke observes that the practice adopted by all prudent practitioners in doubtful cases of intestinal obstruction, of examining the abdominal

apertures for the existence of hernial protrusion, may deceive, unless combined with inquiries into the previous history of the case. It is not enough that no tumor *exists*, for it must also be ascertained whether any such tumor has previously *existed*.

When a hernia has occurred, the sac generally soon acquires adhesions to the neighboring parts, which tends to obviate the risk of its return with its contents under the operation of the taxis. Yet, in all the cases related, the hernia had been of some years' continuance, but was reduced without the employment of much force notwithstanding.

"The presence of sac, even without hernial contents, causes an abnormal fullness in the part, easily ascertainable by examination. The absence of such fullness in a part, when hernia is known to have previously descended, necessarily leads to the conclusion, that the sac upon which it depended has been displaced, and probably returned, together with the hernia.

"The sac in inguinal hernia, below the external ring, becomes united with the spermatic chord, whereby the latter is usually rendered indistinct and obscure. The absence of that indistinctness and obscurity implies the removal of the cause which previously produced them, and therefore that the sac has been displaced. The continuance of the indistinctness and obscurity leads to a directly contrary conclusion.

"When a hernia descends from the abdomen, the aperture through which it descends is always enlarged and dilated. This fact is ascertainable by the introduction of a finger, a circumstance which becomes available to the diagnosis in these cases.

"Should a large aperture be detected, a previous hernial descent may be inferred.

"Under ordinary circumstances of hernia, when the contents are reduced into the abdomen, the area of the aperture is occupied by the remaining sac, while its margins are rendered more or less obscure. If then, a large aperture be found free and unobstructed, with its margins unobscured, there is raised not only a presumptive evidence of the previous protrusion of a hernia at the part, but also the further evidence of the displacement and probable return into the abdomen of the sac by which the hernia had been invested.

"We are led to a contrary conclusion by contrary circumstances." 176.

If a tumor be discoverable in the inguinal canal, of course, the diagnosis is comparatively clear. Supposing none such, still, if reduction *en masse* has been effected, the inflammation of the hernial contents *may* cause a circumscribed pain in the seat which it occupies, while a fullness, or even the rounded form of the hernia deeply situated within the abdominal parietes, may possibly be cognizable upon a minute examination.

Now, if circumstances justify the suspicion of reduction *en masse* of the tumor, they will also justify attempts to cause its reprotrusion. So the patient may be placed erect, and directed to cough forcibly, strain, and make exertion.

This seems likely to be of use, when the hernial tumor is in the inguinal canal, or at the inner ring—if it be within the abdomen, it is less to be depended on.

Mr. Luke argues in favour of an operation of exploration, and dwells on a close observation of the circumstances disclosed by the incisions.

"By the perfect exposure of the external inguinal ring, which the cutaneous incision affords, the size of the aperture, together with the extent to which it is occupied by structures passing through it, are clearly made manifest, and the

same inferences drawn from the observance of these particulars, as suggested in the mere manual examination. For if the size of the ring be normal, a hernia has not descended through it; or, if it be larger than the normal state, yet occupied by an empty sac, an evidence of the previous existence of a hernia, together with an evidence of the reduction of the hernia without the sac being also reduced, is established. But should the ring be found large, and free from other structures than the chord, and if the chord be distinct and unobscured by the presence of sac, and a void is found where fullness is to be expected from the previous history of the case, a strong presumptive evidence on the contrary side is established, that the hernia, together with its investing sac, is reduced." 181.

The inguinal canal is next laid open.

"It will be recollected that the ordinary oblique inguinal hernia, during its passage through the canal, lies anterior to the spermatic chord. The hernial sac, when left empty after the reduction of its contents, occupies the same relative situation, and consequently overlays and obscures the chord after the canal is laid open. If the reverse of this is found in a case where a hernial descent is known to have previously existed, and the chord is ascertained to be clearly and distinctly brought into view throughout the whole extent of the canal, we may justly conclude that the distinctness and clearness with which the chord is seen are caused by the removal and consequent reduction of the hernial sac from over it, which reduction can be effected in no other direction than into the abdomen.

"Again, it is well known to all operators on strangulated hernia, that there is usually found a condensed cellular capsule immediately investing the sac, which, in the performance of an operation, assumes a laminated appearance, and often passes for layers of fascia. This cellular capsule has but little connection with the sac, and will remain even when the sac has been reduced. It will, therefore, be worth while to seek for such capsule in our explorations; for, if found, and ascertained to be empty, the circumstance is of a very conclusive character, and moreover will afford a direct clue to the situation of the hernia.

"A finger, introduced through an opening made in such capsule, will be conducted towards or through the internal ring, beyond which it will be brought into contact with the hernial tumor itself, having in the introduction passed through the same channel by which the reduction was effected. It must not be expected that such capsule will be found in all cases, because it might escape notice by reason of its tenuity, or, in reductions of some duration before the performance of operation, adhesions and obliteration may be caused by inflammation; yet when found, it is a most valuable adjunct to the other means of diagnosis.

"The indications to be noticed at the internal are of a similar nature to those mentioned as being found at the external ring, and relate to the size of the aperture and the structures by which it is occupied. With reference to its size, it may generally be expected to be abnormally large, because before proceeding to perform an exploring operation, there will probably be some account received of a hernial descent having occurred, which descent necessarily implies that it has passed below this ring, and consequently through it. For that reason the ring may be expected to be large, and its borders defined; while its area will or will not be occupied by hernial sac, and the same conclusions drawn from the particular ascertained, as from the same occurrence at the external ring." 183.

Hitherto, there has been no damage done to the peritoneum. But, so far, the circumstances have merely afforded a presumption. Mr. Luke advises the introduction of a finger through the internal ring, and passing it from side to side.

"Should a hernial tumor be present, it will at once be recognised, and found lying externally to the general peritoneal membrane, although within the parietes,

and presenting a rounded surface and tense feel. Should a tumor be not present, the circumstance may be ascertained by observing the smooth surface of the peritoneum, and the continued adhesions which it maintains with the parietes immediately surrounding the ring.

"If doubt still exists, an enlargement of the internal ring, by division of the adjoining transversalis fascia, will afford a clearer exposition of parts, and a more decisive evidence for either an affirmative or a negative conclusion; and thus an exploration may be conducted to its termination, without the necessity of any peritoneal section.

"When the doubts have been resolved in the affirmative, by the discovery of a hernial tumor, the tumor may be brought into the inguinal canal, so as to occupy its former situation before reduction, by enlarging the ring to the requisite extent for its passage. It may afterwards be opened, and its contents dealt with according to their condition, as under the ordinary circumstances of common operations." 184.

It must not be forgotten that, in cases of reduction *en masse*, the stricture is in the neck of the sac. This should be opened, and the neck freely divided. "It should be recollected, also, that the adhesion of the sac to surrounding parts has been severed, and that, consequently, the sac will be liable to be again reduced, during the reduction of the contents into the abdomen, unless caution be used for its prevention. The danger of this occurrence may be always obviated by the introduction of the finger through the neck of the sac, after the contents have been reduced; for thus the fact of their perfect liberation may be readily ascertained."

It may happen, though rarely, that the contents of a hernia are reduced into the abdomen, with the strangulation continued on them by other causes than the neck of the sac.

"Thus the hernial contents may be so situated, that some portions may become strangulated by others, or by adhesions formed during the progress of inflammation, or by apertures of the omentum or mesentery admitting through them portions of intestine. These strangulations may take place either entirely within the abdomen, or within a hernial sac protruded from it. If in the latter situation, and the ordinary symptoms of intestinal obstruction supervene, the taxis may be applied in the usual way, and apparently at first with success, because neither the ring nor the neck of the sac, in such cases, may offer any obstacle of sufficient magnitude to prevent the passage of the tumor through the parietes. Yet, as the strangulation is caused by the involvement of the contained parts with each other, and wholly independent of the apertures through which they passed from the abdomen, their reduction is not followed by the expected relief. A certain similarity to the cases related is thus caused, and the suspicion of a reduction *en masse* is thus created.

"The suspicion may lead to an operation of exploration of the part. But the signs of a reduction *en masse* before mentioned, as coming under the cognizance of the surgeon during the progress of the operation, will be found wanting; the empty sac, with the obscurity of the chord and rings consequent upon its continued presence, becoming so many evidences against such reduction. Neither are there any local signs from which an unequivocal opinion can be formed.

"It is probable, that if the parts strangulated remain in the neighborhood of the ring, a local and obscurely felt tumor, painful over a circumscribed space, may be discovered upon examination, especially after opening the inguinal canal. Thus may be afforded some grounds for suspecting the true nature of the case, yet not sufficiently decisive to render a section of the peritoneum anything more or less than a mere speculative proceeding, with all the contingencies of its doing good or harm to the patient's prospects of recovery." 187.

A valuable paper. The rest of the Volume in our next.

ON THE CURATIVE INFLUENCE OF THE CLIMATE OF PAU, AND THE MINERAL WATERS OF THE PYRENEES, ON DISEASE; WITH DESCRIPTIVE NOTICES, &c. &c. By *A. Taylor*, M. D. 8vo. pp. 342. Parker, London, 1842.

THE Waters of the Pyrenees are little, if at all, inferior to some of the most famous Spas of Germany—the scenery, nearly equal to that of the Alps—the distance from London not more than the journey to Carlsbad—the language much better, and more generally understood than the German—and yet 500 English go to the German Springs for one that goes to Bagnères de Bigorre, Barréges, or the Cauterets! There are various reasons for this disparity. The waters of the Pyrenees have not been "written up," like those of Nassau, Bavaria, and Bohemia. They are indeed, so little known to the profession in England, that very few can give their patients any opinion as to their composition or qualities—much less their applicability to individual complaints. Another reason of the preference alluded to, is the romantic portal or avenue to the German Spas—the lovely Rhine—forming a remarkable contrast with that "long rough road," which wearies the eye and half dislocates the joints of the Valetudinary Pilgrim in pursuit of Health, in whatever direction he may travel in France. But there is yet another reason—more perhaps of a moral than a physical character. The French may be, and doubtless are, a most polite people: but they hate the English, and every thing about the English—except their money! The English know this—and feel this, but still they will spend their money, their time, and their morals in Paris —ostensibly for economy, but really to command more luxuries for the same sum than they could do in their native, but distressed land! Nevertheless, when out of health, the Briton naturally prefers those springs which rise in countries congenial to his own, and whose inhabitants derive their origin from the same stock or race as himself. Difficult as the German language appears to him, he finds, at every step, the most remarkable traces of affinity between it and his native tongue. The invalid, therefore, finds himself, as it were on a friendly soil, and among relations, rather than neighbours of doubtful—or rather of hostile feelings towards him. But there may be times and circumstances, and even necessities, for visiting certain of the Gallic Spas, especially those among the Pyrenees; and a work like the present, was wanted to make the English medical man as well acquainted generally with the Spas of France, as he is now with those of Trans-Rhenish celebrity.

Dr. Taylor's work is divided into not less than nineteen Chapters, of very various interest to the English reader. Some of them we shall pass over very cursorily, whilst to others we shall dedicate more attention.

CHAP. I.—INTRODUCTORY.

We are informed that, for twenty years past, PAU has been gradually, but steadily, acquiring celebrity "among an unbroken succession of visi-

tors," who have derived benefit from the salubrity of its climate, but still it wanted an impartial historian. Some years' residence there—occasional visits to the mineral waters in the vicinity—and the assistance of professional friends, have enabled Dr. Taylor to undertake this task with some degree of confidence. PAU was celebrated in ancient times for the salubrity of its air, and—

"At the present day, rigid statistics stamp it as *the* province of France, possessing, *par excellence*, a climate calculated to promote health, and to subdue certain kinds of disease, both organic and functional." 7.

Our author avers that, in addition to the air, "the waters of the neighbouring mountains are of surpassing efficacy in the treatment of membranous disease, and a variety of symptoms that follow in its train."

CHAP. II.—HINTS TO INVALIDS, &c.

The easiest route is by Southampton, Havre, and Bourdeaux, by steam. The voyage is generally useful in most complaints for which the climate of PAU is recommended. The distance from Bourdeaux to PAU is 125 miles, and is performed in two or three days. The journey should not be undertaken later than the first of September, by those who wish to pass the Winter at PAU, who should repair to that place well supplied with flannel and warm clothing; for there is a vast difference among the Pyrenees between the sun and the shade. Residences with southern aspects, are greatly preferable to all others there. Visitors from Italy approach by Toulouse—from England by Bourdeaux. The towering Pyrenees are seen by both parties at a long distance off. On approaching PAU, and on reaching the top of a hill, a magnificent view bursts on the eye of the traveller. Immediately beneath, is a valley, with a little world of villages, hamlets, vineyards, and streams within itself—rich in fertility, and lighted up by a brilliant sun. Behind the valley rises the vast line of Pyrenees, in Nature's grandest forms. PAU is the capital of the ancient Province of Bearne, and now the chief city of the Basses Pyrenees, distant about 20 miles from the nearest part of the Pyrenean Chain, and commanding a fine view of them as we look up the valley of the Gave, towards the Pic de Bagnères. The town contains about 14,000 inhabitants, and is well built, the natives being polite and good-natured. Carriages are to be had in abundance, and trottoirs are extending along the streets. The town is built on a terrace overhanging the river 150 feet, and facing the Pyrenees. It is sheltered on the north by the *Landes* of the Pont-long, which gradually ascends to the distance of 15 miles from PAU. The north winds, therefore, pass over the town at some height, attracted by the mountains to the south. "The clouds may be often seen quietly sailing onwards when the leaves are unmoved on the lower level." There is a curvelinear head-land to the west that proves a shelter in that direction. PAU is embraced on the south and south-west by the amphitheatre of Turançon, which screens it and its environs from the only bad weather-quarter—the west and north-west. The east and south-east winds are hardly ever felt at PAU, except as bringing dry and warm weather. Thus, at PAU, one

enjoys a stillness of atmosphere so complete as to leave a doubt respecting the quarter from which the wind really blows.

The season here may be said to commence on the first of September, and to continue till the first of June. There are here at least one hundred suites of apartments, tolerably well furnished, independently of small lodging-houses and the hotels. Some of these suites offer accommodations for 12 or 16 persons, and are moderate in price. The inhabitants understand the tastes and habits of the English, and take care to please them if possible. The English Service is performed twice a day on Sundays.

Although more rain falls in Pau than in London, yet the number of rainy days in the former is much fewer. The rains at this place fall in large and sudden quantities—often after sunset, and are soon absorbed by the soil. There are few days, therefore, in which people in health, or even invalids, may not take exercise in the middle of the day. The mean temperature (9—1, and five o'clock,) of Autumn, is 62 degrees—Winter, 45—Spring, 58 degrees.

The west wind brings on its soft and soothing wings volumes of Atlantic vapour, to be expended in the absorption of the excess of electricity accumulated during the south and south-east wind that blew previously. There are several circumstances, according to the testimony of those who have resided at Pau, which render it a desirable *sejour* for invalids. The atmosphere, when it does not rain, is dry, and the weather fine, without either fogs or piercing winds. The Spring is characteristically mild and exempt from cold winds. It is thus favourable to those who are affected with tracheal or bronchial complaints. The following passage from the Author of a Summer and Winter in the Pyrenees, is characteristic.

> "At the foot of a woody range of high ground, forming the promenade above described, (the Parc,) runs the broad shallow river Gave, with a perpetual low murmur that lulls the senses to repose. It is, in fact, the only sound we hear; for there is so little wind in this climate that not a leaf is seen to move, and we, therefore, distinguish at a greater distance the toll of the matin and vesper bell in the neighbouring villages, and the tinkling sounds which tell when the flocks are led to and from the fields. There appears at first to be a sort of mystery in this universal stillness. It seems like a pause in the breath of nature, a suspension of the general throb of life; and we almost feel as if it must be followed by that shout of joy which the language of poetry has so often described, as the grateful response of nature for the blessings of light and life; and never surely could this response be offered more appropriately than from such a scene as this rich and fertile land presents." 50.

The mean annual temperature of Pau is 6 degrees higher than London —4 1-2 higher than Penzance—3 degrees lower than Marseilles, Nice, and Rome—17 degrees lower than Madeira.

On market days at Pau, a great number of the neighbouring peasantry flock into the town, and their appearance bespeaks health and comfort. Dr. Taylor avers, that the pulse is slower among the Bearnois than among other people, which he attributes to the placid and unirritating state of the atmosphere. In respect to the diseases affecting the native population, it is said that there are no predominant ones—that Pau is exempt from endemic or epidemic maladies—that scrofulous and tuberculous dis-

eases are comparatively rare—that rheumatism is as common as in most other places—that bronchitis is not unfrequent during the Winter and Spring, but not of so acute a character as in England—that glandular and mesenteric diseases are rare, but cerebral congestion and gastro-intestinal irritation are the grave maladies among the native children—that inflammatory diseases are of a mild type. The mortality in PAU is about one in forty-five annually—five less than in London, and twenty-two less than in Vienna.

In respect to the influence of this climate on the health of English sojourners, Dr. Taylor observes, that it is sedative to those who are well, diminishing nervous energy and arterial circulation, but increasing the tendency to venous congestion. The healthy stranger, therefore, complains of languor and listlessness, with sense of fulness about the head and chest, and oppression at the pit of the stomach. Under these circumstances, exposure to the sun's rays is dangerous, and a mild alterative aperient is necessary, with or without the shower-bath.

The mortality among the English population, for four years preceding 1842, was, according to Dr. Taylor, very low, considering the proportion of invalids—being only one in 65 to 70. The ratio of deaths from chest complaints was one in 150. The climate of PAU, like that of Nice or Italy, or Madeira, is more valuable as a preventive than as a cure for pulmonary affections. According to Dr. Taylor, the following are the indications.

"1. As the liability to strumous and lymphatic diseases in children is more a predisposition than an hereditary *germ*, it may not be illogical to infer that a climate, in which the native population is very sparingly visited with these affections, is one, if by times resorted to, calculated to repress the bias to their development.

"2. Wherever among children or adults, whether of suspected strumous taint or not, there is the tumid abdomen, the uncertain appetite, the wasted condition, the waning strength, and the hurried small sharp pulse, indicating the commencement of mesenteric disease.

"3. Infantile predisposition to cerebral inflammation, false croup, spasmodic asthma, and to inflammatory attacks in general.

"4. The climate acts beneficially also in discouraging the generation of tuberculous matter, by diminishing irritation of the mesenteric glands and lacteal system, and consequently preventing its deposition in different structures.

"5. In checking tuberculous deposits from coming to maturity, by diminishing the quantity of the pulse and the frequency of respiration; and thus, in the lungs for instance, preventing inflammatory fluxion to the tuberculous points, which, as foreign bodies, under circumstances which increase the circulation, are liable to take on a softening process.

"6. In all tendencies to disease depending on a nervo-sanguineous temperament, such as nervous headache, convulsive disorders in the same temperament, and liabilities to periodic inflammatory action: all aberrations of secretion depending on too high a state of irritability of the secreting organ.

"7. Indeed the predispositions which are favourably influenced by the climate of Pau, may be summed up in one general principle:—viz., wherever it depends upon increased nervous and arterial action, permanently produced either by temperament or by some cause leading to more active disease.

"The morbid condition of the system, favourably influenced by the climate, is that depending on continued inflammatory irritation of some impor-

tant organ, and which, either independently, or by sympathy, is being prepared for a disorganised state incompatible with life. As the mode of action of the climate is that of a direct sedative, modifying, and altogether reducing, where this is possible, irritation, both nervous and vascular, it is evident that the chief benefit derivable from it, is to be looked for, *par excellence*, in that stage of disease preceding, and, if unchecked, leading to dangerous organic mischief." 87.

This is more particularly the case in gastro-intestinal affections. The climate of PAU is supposed to act beneficfally in cases where tubercles exist in a passive state in the lungs. In those inflammations of the bronchi and trachea, to which public speakers are liable now-a-days, the climate in question is said to exercise its highest powers. Dr. Taylor avers contrary to the opinion of Sir James Clarke, that rheumatism is not aggravated by the climate of PAU, especially among strangers, though it is common among the inhabitants. Dr. T. acknowledges, however, that there are disorders to which the climate of PAU is not favourable. These are, atonic dyspepsy, and its long train of attendant phenomena—broken-down constitutions, from residence in hot climates—catarrhus senilis, and chronic bronchitis, with loss of tone and excess of expectoration—chronic rheumatism, complicated with atonic gout, and attended with debility of the digestive organs—apoplectic tendencies, depending upon congestion of the brain or other organs in leucophlegmatic habits—chlorosis, from atony and passive congestion of the uterine system—"all diseases where there are congestion of the venous system, and diminished nervous energy." The qualities of the climate of PAU are thus summed up by Dr. Taylor.

"1st. Its soil being gravelly to a great depth, absorbs most readily any quantity of moisture that may fall, so that there is no stagnant water to be re-absorbed into the atmosphere. 2d. From the topographic features of the country surrounding Pau, it is almost completely shielded from wind, so much so that for weeks it is difficult to indicate the point from which the wind blows. 3d. From the bias which the wind has to blow from the south-west, and north-west, we find, that, if in the morning, it proceeds from the east, at mid-day from the south, that more or less electric matter is thus generated. But the decline of the sun, in this case, seems to solicit the wind from the west, and to invite Atlantic vapour to absorb the excess of electric fluid, which, when not so expended, as in Nice, and in the south-east of France, exerts so irritating an influence on nervo-sanguineous temperaments, and on inflammatory affections of membranes and glands. 4th. Although we have considerable atmospheric variations at Pau, still, from the great absence of agitation of the air, these variations pass innocuously over the invalid. Indeed, the human system, in health and disease, seems to partake of the same tranquillity which reigns abroad in the external world. 5th. The marked absence of free communicable moisture also in the atmosphere, as indicated by the hygrometer, is a state highly favourable to the alleviation and cure of diseases, the produce of exciting and humid climates. 6th. Acting on persons in health, the climate brings down the standard of tone, and modifies the natural temperament, the sanguine making a move towards the phlegmatic, and the choleric towards the melancholic. On the same principle, no doubt it is, that diseases of a mixed, nervous, and infimmatory character, come to have their symptoms modified and frequently subdued. That kind of functional derangement of a tonic irritable type, which paves the way to

severe organic lesion, it will be seen, from what has been previously said, is the state of things for the alleviation and cure of which the qualities of the climate are most suited, as well as in preventing the development of pending predispositions. The Author also has occasionally observed continual irritation of the trachea and bronchi, as well as of pulmonary tubercles, accompanied with purulent expectoration, quick pulse, hectic fever, and emaciation, to be subdued by a transfer of action to the liver; a manageable state of congestion of this organ being the expense of the relief of symptoms threatening to life. Three or four instances of this mode of amelioration have come under his notice during the last few years, where the patients are now entirely recovered from the pulmonary symptoms. In mesenteric irritation of children, also, there is often the same kind of beneficial transfer, most chiefly to the liver, and occasionally to the hæmorrhoidal vessels." 97.

Dr. Taylor winds up this part of the work by a kind of parallel between the climate of PAU and some of the principal resorts of invalids in other parts of the world. Thus, in the south-east of France (Provence and Languedoc), less rain falls than in any other part of Europe, and a complete drought for months in succession is not unusual. In the Winter it is colder and drier than in the south-west. The Bize and Mistral Winds, too, are very annoying and injurious to invalids—more especially, to pulmonary ones. Moving on towards NICE, we perceive features entirely opposite to those of PAU. There the easterly wind sets in with the "blood-red moon" of March, and is severely felt by almost all people in delicate health. Dr. Farr has feelingly warned pulmonary invalids to leave Nice in the Spring—the great objection to its climate being its dryness, and the exciting and irritating nature of its atmosphere rendering it injurious to all complaints requiring a sedative to the nervous and vascular systems. The natives of Nice are more subject to diseases of an acute inflammatory type than those of PAU. According to Sir James Clark there are very few cases of pulmonary consumption, or even a tendency to it, which will be benefited by the climate of Nice. It is found that the mortality at Nice is one in 31, whereas at PAU it is one in 45, as we stated before.

But the climate under consideration approximates as much to that of Rome, as it differs from that of Nice. It is fully as sedative as the air of the Eternal City.

MINERAL WATERS OF THE PYRENEES.

This lofty and romantic Alpine chain of mountains, that separate France from Spain, pour out, especially on the northern side, many mineral springs—sulphureous—saline—and chalybeate. We shall notice the chief of these.

I. BAGNERES DE BIGORRE.

This is situated at the base of the Pyrenees, 35 miles from Pau, in a south-eastern direction, and at the entrance of a smiling valley, being neither in the mountains, nor yet in the open country. The temperature is not so high as at Pau, nor subject to such reductions as we experience at

an early period of the season in the other watering-places more distant from the plain. The mean temperature of the fine season (June to October) is about 64° of Fahrenheit. Thus a patient may leave PAU for Bagnères in the month of May, while it might be dangerous for him to take up his abode among the mountains at this early period, or even for five or six weeks afterwards. The waters here, being less potent than those that are higher up the Pyrenees, are good preparatives for the latter in many disorders and diseases. The antiquity of these waters is traced up to the Siege of Troy, or even the Wars of the Giants and Gods. The Romans have left records of their acquaintance with these springs—and that is antiquity enough.

"There is perhaps no town in France which has greater attractions at first sight than Bagnères. As you approach it from Tarbes, which is distant thirteen miles, you have at first a very fruitful plain, then richly-wooded coteaux advancing in gradual undulation, encircling Bagnères, then mountain piled above mountain; and towering over all, in the elevated horizon, the Pic de Midi, at a height of 10,000 feet, stretching over the less elevated mountains in its foreground, as if peeping into the town." 223.

On entering the town itself, we are agreeably surprised to see well-kept Macadamized streets, with neat whitewashed houses on both sides. The houses are commodious—the gardens numerous—its promenades command magnificent prospects of mountain and precipice—wood and water. The town contains a fixed population of 8,000 souls, exclusive of visitors; 4,000 of which it can accommodate in the season (June to October). It is 1,600 feet above the level of the sea, and snugly nestling at the very feet of the Pyrenees. The following observations of Mr. Inglis may be introduced here :—

"It has been said of Bagnères, that it is a town where pleasure has raised her altars beside those of Esculapius; and this is true, for it is only at Bagnères, among all the watering-places of the Pyrenees, that that kind of pleasure is to be found, which is usually sought for at a watering-place. Bagnères is, for this reason, by far the most frequented of the baths, because it is not resorted to by invalids only, but also by two other kinds of visitors, those whose slight ailments are compatible with the pursuits of pleasure, and those who are driven by the heats of Summer, from the plains of France to the mountain air of the Pyrenees. Among this latter class may be ranked the great majority of the English who reside at Pau and its neighborhood. It doubtless possesses many advantages both to the healthy and the infirm. Delightful drives and promenades, and the gayety occasioned by some thousands of persons who have nothing to do, are sufficient attractions for the former; and the abundance, the choice and salubrity of the medicinal springs, are attractive enough to the latter." 225.

House-rent is cheaper than at PAU, and much more so than at any of the other watering-places in the Pyrenees. There are not less than 42 distinct saline sources at Bagnères—all, however, apparently from the same source, and varying but little in their composition. They are by no means powerful springs—not nearly so much so as many that are frequented in England; but they are useful in many functional disorders—and as preparatives for others more potent in the Pyrenees.

The mineral sources at this place are divided into three classes—saline—chalybeate—and sulphurous. There is but one ferruginous spring, and

one sulphureous, properly speaking—both out of the town—the latter, indeed, six miles from Bagnères. The salines are in the town. They are perfectly transparent and limpid—almost inodorous—of mawkish taste, and communicate to the palate a slight chalybeate or rather styptic taste. Their specific gravity is little more than that of distilled water—and indeed they contain little more than a grain of saline matters in the pint. There are 22 springs here, varying in temperature from 81° to 124° of Fahrenheit. Sulphate of lime forms the most preponderating ingredient in these waters—varying from one-tenth to nine-tenths of a grain in the pint. Of the subcarbonate of iron there is just a trace. The "FONTAINE FERRUGINEUSE" is situated ten minutes' walk from Bagnères. The temperature is variable, but never rises above 64°. It contains small quantities of iron, potass, and carbonate of lime.

The SULPHUROUS SOURCE (Labassere) lies six miles from Bagnères, at the feet of the great heights of MONT AIGU. The water is abundant, limpid, without penetrating odour, but the flavour clearly sulphureous. The solid contents are not a quarter of a grain in the pint, and the gaseous very small.

The climate of Bagnères, like that of PAU, is decidly sedative, and to this place most invalids should resort before they try the other waters of the Pyrenees. The usual physiological effects of these waters is that of a mild stimulant to the mucous surfaces of the stomach and bowels, soliciting a greater secretion of gastric juice, and improving the digestion. If taken in sufficient quantity they act on all the secretions, especially the urine, and relieve congestions. To act on the bowels it will often require two quarts at divided doses in the mornings. As mere alteratives, much smaller quantities will suffice, Dr. Limonnier, who has written well on the Bagneres waters, gives the following resumé of the complaints to which the waters are adapted, internal as well as external.

"In nervous diseases, such as hysteria, hypochondria, palpitations, and nervous spasmodic affections of the stomach, the waters of the Salut in bath are recommended; to which, if there be an atonic habit of body present, the waters of the ferruginous fountain may be added internally; if there be bilious derangement, the waters of Laserre may be alternated with the latter.

"In loss or diminution of voluntary motion, viz., rheumatism, lumbago, sciatica, and paralysis, without injury of the brain, we have the following indications. In the case of an individual of small degree of excitability, the douche and vapour bath, and the baths at a high temperature of Casaux, Dauphin, La Guthière, Petit Bain, and la Fontaine de Laserre; while in one of a nervous temperament, irritable and predisposed to apoplexy and organic congestions, the baths of Foulon, Grand Pré, and No. 3 of Pinac, are indicated. The internal use of the Laserre water is often also associated with this external treatment.

"In pulmonary catarrh, humid asthma, chronic laryngitis, we recommend No. 3 of Pinac, Foulon, Grand Pré, St. Roch, La Guthière, Laserre, the water of Labassere internally, made tepid, mixed with milk, gum-water, or other diluent.

"In excessive discharges from some mucous canals, tepid baths at first, graduated down to those of lower temperature, No. 3 of Pinac, Salut, and lastly des Yeux. Injections also of the waters of Labassere, and of the ferruginous fountain, are practised with great advantage; and these waters are also taken internally in these affections.

"In diseases of the skin with bilious complication, or with any other organic

affection, which contra-indicates the use of the sulphurous mineral springs, the waters of Foulon, No. 3 of Pinac, à l'entrée de Laserre, in bath, and the waters of Laserre and Labassere internally, are recommended and taken with advantage.

"In diseases of the abdomen, viz., chronic inflammation of the stomach and bowels, chronic diarrhœa, congestions of the liver and spleen, and chronic inflammation of the liver, we have the following course to pursue. If the affection depend on nervous irritation and a subacute state of inflammatory action, the waters of the Salut may be beneficially used externally and internally; if on the contrary, it depends on an atonic state, or where there is little excitability in the system, the waters of la Reine, la Fontaine Ferrugineuse, or of Labassere, internally, are the appropriate remedy; if again it be complicated with bilious derangement, without any symptoms of inflammatory re-action, the same waters may be administered in addition to those of Laserre." 248.

II. WATERS OF CAPBERN.

These are situated only ten miles from Bagnères, and are of a purely saline character. They have, however, required a considerable reputation in a certain, but limited class of complaints, to which no small importance is attached. The village of Capbern, 4½ miles from Tournay, contains six hundred inhabitants, and is very pleasantly situated. The waters are considered to be an antidote to sterility, and are therefore visited by all those whose organs of philoprogenitiveness are developed—or the reverse. The waters are limpid, inodorous, of a sweetish taste, and cause a sense of dryness in the throat. Their specific weight scarcely differs from that of distilled water. The temperature is about 76. They flow in great abundance, and disengage a good deal of gas. The solid contents are about eight-tenths of a grain in the pint—and those chiefly common saline matters. The peculiar virtues of Capbern waters (supposing they are possessed of such) must depend on some unknown ingredient—probably a vegetable principle. Their marked stimulus on the uterine system, has led the physician to suppose that something analogous to the ergot of rye may be infused in these springs. Although they are said to be very useful in many disorders—especially in congestions of various organs—yet their physiological mode of action is that of exciting the uterine vessels in women and the hæmorrhoidal in men. They are taken internally and used as baths.

But as we do not wish to ruin Ems, Liebenstein, and Schwalbach, we shall take leave of Capbern, not doubting that some of our readers will try the efficacy of the *philoprogenitive spring* of the Pyrenees.

III. BARREGES.

This is the Lion of the Pyrenees—in the same way as the "Old Well" is the Lion of Harrogate. It is distant from Pau about 47 miles, in a South-eastern direction—the road being as good as the average of turnpikes in England. The diligence runs every second day, between an early breakfast and a late dinner. Commodious voitures may be hired at 20 francs a day. At Lourdes we strike at once into the Pyrenees, and the scenery here is of the first order—romantic and sublime.

Barréges itself is a village capable of containing, in the season, some

twelve hundred souls. It is 4000 feet above the level of the sea—composed of one street—built on the shelf of a mountain, overlooking a noisy torrent—and surrounded by bleak mountains, usually canopied by mist. Voila BARREGES. It is evident that the inducements must be cogent ones, which could neutralize the disadvantages of so triste and ungenial an abode! But what will not man undergo in pursuit of health as well as of wealth? The waters of Barréges are comprised in three principal sources—the *hot source*—the *temperate*—and the *tepid*. These supply 17 baths, two douches—and two large basins—one for the military, and one for the poor. There is also a source reserved for the drinkers. The waters of all these sources are clear, limpid, and exhale an odour of rotten eggs. Their taste is mawkish, nauseous, and oleaginous. Their surface is covered with a thin pellicle, of unctuous appearance, and they deposit this glairy substance on the sides of the baths, &c. It is called *Barregine*. The supply is prodigious. Their temperature ranges from 110° to 84° of Fahr. The solid ingredients are so small, that a pint of the water does not contain a tenth part of a grain!! It is the sulphuret of soda that gives them their sulphureous smell—being about one twenty-fifth part of a grain in the quart. The following is the carte des maladies for which the waters of Barréges are chiefly employed, viz.—1. Diseases of the skin, with their varieties,—squamous, pustular papular; 2. Affections of muscular, fibrous, tendinous, and membraneous tissues, comprising rheumatalgia, lumbago, sciatica, articular rheumatism, muscular retractions, anchylosis, white swelling, articular enlargements; 3. Deep-seated irritation, arising from the presence of foreign bodies, collections of matter, carious bones; 4. Scrofulous and ill-conditioned sores, and fistulous ulcers.

Four or five miles from Barréges is situated ST. SAUVEUR, whose waters are feebler than those of the former, and are used as preparatory sometimes to the stronger springs.

IV. CAUTERETS.

In another magnificent gorge of the Pyreneés rise some celebrated sources of mineral waters—the CAUTERETS. The town is situated in a solitary but picturesque spot, and contains a stationary population of some 800 souls—but capable of accommodating a thousand visitors. There is a great variety of mineral springs here, and the sheltered site permits of Winter as well as Summer residence.

Cauterets possesses eleven independent sources, pent up in a small compass, yet exhibiting specimens of almost all the sulphurous waters scattered over the Pyrenees. There are sources even more powerful than the waters of Barréges—waters possessing the virtues of the Eaux-Chaudes—Eaux-Bonnes—springs shading from the most powerfully stimulant, down to the mild and soothing sulphurous waters of St. Sauveur. Cauterets is more than a thousand feet lower than Barréges—is better sheltered—has a less keen air—and not near so much subject to fogs. The spring that is most used here is the RAILLERE, of 104 degrees of temperature, and not containing more than a tenth of a grain—if so much—of solid matters in a pint of water. There is about a hundredth part of a grain of sulphuret of sodium in the pint. Some of the sources are as high as 131° of Fahrenheit. This source is celebrated for disorders of the mucous

membranes—especially those of the chest. The number of candidates of this class, and the number of cures performed, seem to attest the powers of this water. It is situated a mile from the town, and the assent to it is fatiguing to a debilitated person. But the hardy mountaineers trot him up briskly in a sedan-chair. The drinking and bathing processes are carried on between 4 and 10 o'clock in the morning—sometimes through the whole night.

There is one passage in Dr. Taylor's work which shows a considerable drawback on the virtues of these waters in certain obscure pathological conditions of the lungs—namely, where there are *miliary tubercles*—a condition which we fearlessly maintain to be incapable of accurate diagnosis by the stethoscope—whatever auscultators may say to the contrary. But our author avers that, whenever these tubercles take on "*a state even of incipient activity*," the waters of La Raillère are dangerous agents. How difficult to say the precise time when tubercles *begin*, as it were, to shoot out from their nascent and latent condition! It appears evident, however, that the waters in question are very serviceable in affections of the mucous membranes—laryngeal, tracheal, and bronchial—and for that we must be thankful.

V. EAUX-BONNES AND EAUX-CHAUDES.

These are waters of the mildest sulphureous kind—and might be used in almost all diseases—or all stages of any disease. They are situated at the foot of the great Pyrenean chains, about 26 miles from Pau, and within a short distance of one another. The road, which is excellent, runs directly South from Pau. The famous little watering-place of EAUX-BONNES is seen crouching in a cul-de-sac, under the protection of mountains 8000 feet high. There are not more than twenty houses in the village; yet they accommodate five or six hundred invalids annually!

The village is rather more than 2000 feet above the level of the sea. The air is pure and fresh—and less agitated by winds than in most other parts of the Pyrenees—and consequently better suited to pulmonary individuals than any of the other sulphurous springs in these mountains. There are five distinct sources in Eaux-Bonnes. That for drinking is the Source Vieille, at the temperature of 88°. The Source de la Douche has a temperature of 91°. A pint of the waters contains about three-fifths of a grain of solid contents, with sulphuret of sodium, to which the odour is due. These waters have gained considerable reputation in the cure of pulmonary affections. In 1840, 2,800 persons took the waters and baths here, and 50,000 bottles of the water were taken away.

VI. EAUX-CHAUDES.

This petty village is situated in a gorge of the Pyrenees, with some dozen or two of houses and bad accommodations. The waters are called hot, on the principle of *lucus a non lucendo*, for the highest temperature is 97½, or not quite blood-heat. Their reputation depends chiefly on the wonderful cures which they are said to perform in obstinate chronic rheumatism. They are sulphureous like the Eaux-Bonnes, and contain about a pinch of saline matters in the gallon.

We may conclude by expressing our opinion that Dr. Taylor has given a fair, and we think impartial exposition of the Climate of Pau and the Waters of the Pyrenees.

LECTURES ON THE ERUPTIVE FEVERS, DELIVERED AT ST. THOMAS'S HOSPITAL IN JAN. 1843. By *George Gregory*, M.D. &c. London, 1843.

THE great experience which twenty years of official connexion with the small-pox and Vaccination Hospital were supposed to have given to Dr. Gregory, pointed him out as a person peculiarly well qualified to deliver a course of lectures on the Exanthemata, a class of diseases, whose pathology, and more especially the diagnosis, oftentimes proves so embarrassing to the student, as well as to the junior practitioner. That the selection was a judicious one, will, we think, appear evident from the succinct analysis we now propose to give of the volume before us. The lectures, in their published form, are thirteen in number. In the *First* of these are considered the *Character and Affinities of the Eruptive Fevers.* The author commences by considering the relation in which the exanthemata stand; 1, to each other; 2, to other forms of fever; 3, to other diseases of the superficies; 4, to other diseases arising from morbid poison; 5, to the diseases of other structures. The greater exanthemata, by which he means those that bring life into danger, are four in number: *small-pox, measles, scarlatina, fever*, and *erysipelas.* On the subject of the exanthematic or epidemic mortality—its amount—the proportion which deaths by the exanthemata bear to the deaths by all other diseases—the constancy or inconstancy of this proportion, and other similar points, he says:—

"Upon an average of years, 350,000 persons die annually throughout England and Wales, and 46,000 in the metropolis. The mortality by the four great epidemic maladies (small-pox, measles, scarlatina, and whooping-cough,) is very nearly 40,000 in England and Wales, and about 5000 in the metropolis, averaging one in nine of the total mortality, or eleven per cent. This is a very large proportion. That four diseases only should absorb one-ninth of the total mortality of this, and probably of all other countries, may well excite our surprise."

If, says the author, the exanthemata are considered independently of the whooping cough, considerable fluctuations will be perceived, the mortality by them sometimes falling as low as six per cent., at times rising to near thirteen; but a very important principle comes into play here, which serves to equalize the amount of epidemic mortality. This curious doctrine had long been surmised, but was never proved until the statistical inquiries of recent times showed its correctness. We may, he says, for want of a better name, call it the law of vicarious mortality, by which is understood, that whenever one epidemic diminishes, another increases, so that the sum-total of epidemic mortality remains, on an average of years, nearly the same. The following table exemplifies this:—

Table, exhibiting the Amount of Epidemic Mortality in England and Wales, during the years 1838, 1839, 1840.

	Year 1838.	Year 1839.	Year 1840.
Small-pox	16,268	9,131	10,434
Measles	6,514	10,937	9,326
Scarlet Fever	5,802	10,325	19,816
Total Mortality by the Exanthemata	28,584	30,393	39,576
Whooping-cough	9,107	8,165	6,132
Total of Epidemic Mortality ..	37,691	38,558	45,708
Total Mortality throughout England and Wales	342,529	338,979	359,561

This table shows that every year is distinguished by some master epidemic. In 1838, small-pox was the ruling epidemic throughout England. In 1839, measles and scarlatina struggled for the mastery. In 1840, scarlet fever was so general and so fatal that the mortality by it exceeded by one-fifth the ravages of small-pox during an epidemic season, (1838) and more than doubled the mortality by that disease in 1839.

The following table, exhibiting the amount of epidemic mortality in the metropolis during a period of five years, shows that the same general principle applies to town and country, but is less manifest in the smaller population :—

Table, showing the Amount of Epidemic Mortality in London, during Five Years—1838 *to* 1842.

	Year 1838.	Year 1839.	Year 1840.	Year 1841.	Year 1842.
Small-pox	3,817	634	1,235	1,053	360
Measles	588	2,036	1,132	973	1,292
Scarlet Fever	1,524	2,499	1,954	663	1,224
Total Mortality by the Exanthemata	5,929	5,169	4,321	2,689	2,876
Whooping-cough	2,083	1,161	1,069	2,278	1,603
Total of Epidemic Mortality	8,012	6,330	5,390	4,967	4,479
Total Mortality throughout London	52,698	45,441	46,281	45,284	45,272

From this table it appears that, in 1838, Small-pox was the great epidemic in London, as in the country. In 1839, measles and scarlet fever were both on the increase, while small-pox had sunk from 3,817 to 634. In 1840, scarlet fever predominated. In 1841, whooping-cough doubled its numbers, and shot above all the rest; while scarlet fever sunk to the low point which small-pox had reached in 1839.

You will perceive from all this, says the author, that vaccination, great as its merits are, does not, and cannot do all that its too sanguine admirers wish. The blessings of vaccination are met and counterbalanced by the law of vicarious mortality. How, and why is this? The explanation is easy. The weak plants of a nursery must be weeded out. If weakly children do not fall victims to small-pox, they live to fall into the jaws of tyrants scarcely less inexorable. Surely Dr. Gregory is not serious in saying that the blessings of vaccination are counterbalanced by the law of vicarious mortality. His attempted explanation of why the thing is so, we do not at all like. Certain it is that the sum of human misery has been considerably diminished by the introduction of vaccination. Dr. Haygarth, who entertained some extravagant ideas of effecting the annihilation of small-pox by universal inoculation, calculated, that if the thing could be accomplished, in fifty years more than one-eighth would be added to the population.

The general character of the exanthemata is derived from the following sources: 1. From the presence and course of the accompanying fever. 2. From the course of the eruption. 3. From the law of universal susceptibility. 4. From the law of non-recurrence. 5. From the law of contagious origin. 6. From the law of epidemic diffusion. With respect to the character of the accompanying fever, in the case of the exanthemata, it is almost uniformly inflammatory. It is found to be so in nineteen-twentieths of the cases of small-pox and measles. The low or nervous form of fever occasionally characterises scarlatina and erysipelas. The malignant form of fever is occasionally witnessed in small-pox and scarlatina.

The notion that "fever precedes the specific action of the exanthematous poisons," has prevailed at all times, and still holds its ground; it is adhered to by Dr. Williams, in his work on Morbid Poisons. He calls fever the *primary* effect of the poison; affection of the skin and mucous membranes, he calls the *secondary* effect of the poison; and the inflammation of internal organs its *tertiary* effect. From this doctrine our author entirely dissents, his opinion being, that exanthema may take place without fever, that the febrile state is not essential to the development of the exanthem. "For," he says, "cow-pox, varicella, inoculated small-pox, and the mildest type of scarlatina, frequently display themselves without initiatory, without eruptive, nay, even without maturative fever." In fact, he says, "the less the fever, the more perfectly is the eruption developed, and the more normal is the course of the disease. Any tumultuous febrile action disturbs the regular progress of an exanthem. Witness scarlatina with excessive angina. There is here literally no eruption at all. We call the complaint angina maligna. Witness the recession of the eruption in malignant measles. Witness the ill-developed eruption of petechial small pox."

Dr. G. Gregory appears to us to mistake the real question in this place, and, from so doing, to expend a great deal of words, to no purpose whatever. We think the question to be this, whether the existence of fever is essential to the existence of a certain disease caused by a specific poison, which disease is, in most cases, but not invariably, characterised by an eruption, as one of its leading symptoms. The question which Dr. Gregory is discussing is, whether the existence of fever is essential to the existence of exanthem. We think that in all cases of the greater exanthemata there is always more or less of fever; but we do not think that the completeness of the eruption depends on the violence or intensity of the fever; nay, we see that where the eruption is most complete, the violence of the fever is least. What we mean is, that there is not that connexion between the fever and the eruption, as that they should bear a direct ratio, the one to the other. Our opinion is that a certain coincidence is to be observed between a certain amount or form of eruption and a certain character of fever. We do not think that either is caused by the other, but that they each, severally, depend on the nature of the exanthematous poison, as well as, probably, on the constitution of the individual. In this way, probably, Burserius, Vogel, De Haen, Frank, and those other credulous mortals, whom Dr. G. Gregory takes to task for avowing their belief in such a monstrous phenomenon as "the Irish mode of undergoing small-pox," without an eruption, would endeavour to excuse their credulity. They, like ourselves, would very likely make so bold as to tell him that they considered the eruption only as a symptom of the disease, not the disease itself.

In speaking of the second character of the exanthemata, viz. the eruption, he notices a doctrine recently brought forward under the title of the *symmetry of diseased action*; by which it is understood that in disease both sides of the body are affected alike. The chief illustrations of the symmetry of disease are to be found in the phenomena of rheumatism, in the mode in which the teeth decay, in the growth of certain tumors; but best of all, in the appearance of the exanthematic eruption. In the corymbose form of small-pox the patches, or corymbi, will be found to correspond on the two sides of the body in the most extraordinary manner.

With respect to the primary sources of the exanthematic poisons, it was believed by several eminent men, long before the discovery of vaccination, that they were originally derived from cattle.

In Lecture Second, the author considers *the Character and Management of the Eruptive Fevers.*

The third character of the Eruptive Fevers our author derives from the law of universal susceptibility; there being no principle more generally recognised than that small-pox and measles necessarily and unavoidably occur to every man once in the course of life. There are, however, some countries in the world not yet visited by the exanthemata. Small-pox, measles, and scarlet fever are to this day unknown in Australia and Van Dieman's Land. The fourth peculiarity of the eruptive fevers is derived from the law of non-recurrence. Immunity from second attacks of the same disease is a very important principle in pathology, applying not

merely to small-pox, measles and whooping cough, but to all diseases whatever, which originate from a poison or miasm. It belongs, though in a less degree, to fevers of *endemic* origin—as ague and remitting fever. It is even traceable in fevers of internal origin, as gout and rheumatism. In all cases, therefore, the susceptibility of a disease is more or less exhausted by once undergoing it. A gradation in this respect may easily be traced from rheumatism and gout, (where the law obtains least,) through ague and every variety of endemic fever, whether remittent or continued, up to plague, scarlet fever, yellow fever, measles and small-pox. The law of non-recurrence is more strikingly displayed in measles and small-pox than in any other known disorder. Exceptions occur, however, even here.

We now come to the fifth characteristic of the exanthemata—contagious origin. The contagious, infective miasm, or *materies morbi*, obtains access to the human body in three modes. First, by the inhalation of air tainted by the breath or perspiration of a patient. This is called the mode of infection. Small-pox, measles, plague, typhus, scarlatina, and erysipelas, are thus communicated. Secondly, miasms gain access to the body by solution in the fluids, or humors, and subsequent application to the unbroken surface. It is in this way that psora, tinea capitis, gonorrhœa and the venereal disease are communicated from man to man. This mode is called contagion, *a contactu corporis*. The materies morbi, however, must be dissolved. The germ of disease is conveyed in the fluid form into the interior of the frame, where it mixes with and taints the blood. Thirdly, some of the morbid poisons are not admitted into the frame unless they are applied to an abraded or wounded surface. Hydrophobia, vaccinia, and farcinoma, (or glanders) are received in this way. Small-pox, and plague may thus be excited artificially, and the process is called inoculation. Direct communication of disease by means of the blood, and not by the secretion from the blood, is one of those points in pathology which is now attracting considerable attention on the Continent. The injection of the blood of a glandered horse into the veins of a healthy horse communicates the disease. Measles has been communicated by inoculation with the blood in very many instances. Each specific miasm has its respective laws—its period of latency, of development, and of decline. With reference to the period of incubation, the morbid miasms are divisible into three classes :—1st. Those of *rapid* incubation—viz. chicken pox, plague, scarlatina, and gonorrhœa. In these instances, the latent period is less than a week. 2d. Those of *mature* incubation, the period extending from ten to fourteen days—in this class come small-pox, measles, and whooping-cough. 3d. Those of *tedious* incubation (extending from four to six weeks.) In this class we place hydrophobia and secondary syphilis.

"From the earliest period at which the existence of morbid poisons became known, the analogy of vegetable fermentation has been adduced to explain their *modus operandi*. The doctrine of a fermentative process going on during the incubation of small-pox and measles, was distinctly announced by Sydenham, Willis, Diemerbrock, and Morton. Liebig has lately given increased interest to this portion of pathology, by reviving the hypothesis of fermentation, and investing it with a scientific character."

"The phenomena attending the transformation of organic vegetable compounds afford, he says, not merely an analogy, but a correct explanation of the changes taking place in the animal economy by the agency of morbid poisons." Nothing, however, can be clearer than that in this notion, whether correct or not, Liebig is anticipated by Diemerbroek, who flourished two hundred years ago. "Out of an infected body (says he) flow forth continual streams, which, being received by other bodies, presently ferment with the blood, and excite the latent and homogeneous seeds of the same distemper, disposing them into the idea or character of the same disease."

Mr. Farr, in his fourth report, proposes to call all those diseases, which have the property of communicating their own action, and affecting analogous transformations, zymotic diseases, (from ζυμοω, to ferment,) and the action itself, zymosis. Zymotic diseases will comprehend all those now associated under the names of "epidemic, endemic, and contagious maladies." One very remarkable character of the zymotic miasms is, that they operate upon the healthy body without the aid of predisposing causes. A man in the most perfect health contracts small pox or measles, and this state of body is the best possible for insuring the success of inoculation and vaccination. Almost all cases of vaccination which progress unfavourably, may be traced to some previously unhealthy condition of the humors or secretions. So that a characteristic feature of the exanthemata is "absence of predisposing causes."

"All miasms of animal origin are capable of attaching themselves to fomites, and (provided they be excluded from the air) of retaining their communicating property for a considerable length of time. This great law of nature is the foundation of that important practical measure—quarantine. It is a law of universal application. Tinea capitis spreads by means of hats, combs, and brushes; Egyptian ophthalmia, by towels and sponges; small-pox and typhus, by clothes and bedding; plague, by personal apparel and old rags. Some would persuade us that merchandise, which, *ex necessitate rei*, could never have been near the chambers of the sick, or handled by others than by men in health, may also communicate contagion; but I believe this doctrine to be opposed to every principle in sound pathology."

From the well-known fact that medical men very seldom communicate the seeds of disease, Dr. Haygarth disbelieved in the doctrine of communication by fomites. That fact certainly proves how exceedingly volatile contagious miasms are, and how short an exposure to the air deprives them of noxious quality. The term of forty days originally judged necessary for the security of the community is founded on utter ignorance of the laws of morbid poisons. As the incubative stage of plague never exceeds seven days, so one week of quarantine is sufficient, and two weeks should satisfy the most scrupulous anxiety. It may be observed that all fomites or harbourers of contagion, are substances of a rough surface, or downy texture. Wool, cotton, leather, every kind of apparel, are the substances to be most guarded against. Metallic substances are considered incapable of harbouring contagion.

The sixth and last character of the exanthemata is drawn from their occurrence as *Epidemics*, a term which simply expresses the fact of the spreading of a disease among the people without reference to the precise

mode of communication. Some diseases accordingly are contagious but not epidemic, as opthalmia, gonorrhœa and porrigo; whilst some are epidemic, but not contagious, as catarrh, diarrhœa and pneumonia. Again, some diseases are both epidemic and contagious, as small-pox, measles, scarlet fever, typhus, plague, and probably cholera. With respect to the nature of the origin of epidemic diseases, various opinions have been entertained. The present most approved theory of epidemic influence attributes everything to the atmosphere; but neither the thermometer, nor the barometer, nor the hygrometer, nor the electro-meter, aid us in our researches. Statistical research holds out the fairest prospect of our attaining to truth in this recondite branch of pathology. Ten diseases are placed by Mr. Farr in the category of epidemic maladies—namely, small-pox, measles, scarlatina, and whooping cough, the four great epidemics, together with croup, thrush, diarrhœa, dysentery, cholera, and influenza.

Though little is known with respect to the ultimate cause of epidemic visitation, still there are certain laws with reference to the diffusion of epidemics, which are sufficiently well established. Thus it rarely happens that two diseases are epidemic at the same time in the same district. Some exceptions, however, to this law have been observed. In 1839, both small-pox and measles were epidemic in England and Wales. It has been generally observed that epidemics are unusually severe when they first appear in any country, or are renewed after a long interval of time. Our author next considers the principles which are to guide us in the general management of the eruptive fevers. First, he lays it down that an exanthema cannot be cut short. It has been six, eight, or twelve days breeding, and so must run its course. The legitimate objects of treatment are to lessen inordinate constitutional tumult, to subdue plethora, and to check accidental congestions and complications. The great objects of treatment, in fact, in these disorders, are less directed to the specific malady than to those congestions and superadded affections by which the steady march of the exanthem is impeded. Hundreds of cases in these diseases may be conducted to a close without a grain of medicine; because, in such cases, the febrile action, or zymotic process, goes on quietly, being neither too violent on the one hand, nor, on the other, deficient in the necessary power. To give active medicine here is hurtful. It deranges nature. But the case is different when the febrile commotion or effervescence is inordinately violent, as when small-pox is ushered in with phrenitis, measles with epistaxis, scarlatina with excessive angina. Purgatives, leeches, cold lotions, bleeding from the arm, may then be required. On the other hand, should the vis vitæ fail, should the first effect of the poison be to reduce the powers of life so low that the disorder cannot develop its regular series of phases, when the extremities are cold, the eruption tardy, when syncope occurs, or actual collapse is threatened, then is the time for stimulants. Great caution is necessary in treating those cases, where debility is left behind after an attack of exanthematous disease. The difficulty consists in distinguishing real from apparent debility.

In his Third Lecture, the author discusses *The Early History and Phenomena of Small Pox.*

The Greeks and Romans knew nothing of small-pox. The first notice

of a disease that looks at all like it, occurs in a chapter of Procopius, "De Bello Persico" (lib. 11. ch. 22), where he describes a dreadful pestilence which began at Pelusium, in Egypt, about the year 544, and spread in two directions, towards Alexandria on the one side, and Palestine on the other—a very short time afterwards very unequivocal traces of small-pox are to be met with in the countries bordering on the Red Sea. Mr. Bruce, the celebrated Abyssinian Traveller, wishes to fix the first epidemic of small-pox to the era 522, which corresponds sufficiently near to the date of this plague described by Procopius. Rhayes (900) is the first writer who mentions small-pox; he gave a clear and full description of it. From the East small-pox travelled to the West, and appears to have reached England towards the close of the ninth century. This pestilence reached America about 1527. The ravages of this disease, dreadful as they are in temperate climates, are still more so in tropical. Coming to the year 1640, when the mode of treating fevers by the hot or sweating system had attained its acme, our author gives us a specimen of this mode of practice, extracted from the writings of Diemerbroek, a Dutch physician and professor. This practice was more especially applied to small-pox.

"Keep the patient," says Diemerbroek, "in a chamber close shut. If it be Winter, let the air be corrected by large fires. Take care that no cold gets to the patient's bed. Cover him over with blankets. Red blankets have always been preferred—not that the colour is material—but because, in the times of our ancestors, all the best, thickest, and warmest blankets, were dyed red. Never shift the patient's linen till after the fourteenth day, for fear of striking in the pock, to the irrecoverable ruin of the patient. Far better is it to let the patient bear with the stench, than to let him change his linen, and thus be the cause of his own death. Nevertheless, if a change be absolutely necessary, be sure that he puts on the foul linen that he put off before he fell sick, and, above all things, take care that this supply of semi-clean linen be well warmed. Sudorific expulsives are, in the mean time, to be given plentifully, such as treacle, pearls and saffron."

This is a sketch of the method of expelling the peccant humors in fever by perspiration, and such was the state in which Sydenham found the practice of medicine in 1667. No one can justly appreciate the vast merits of Sydenham, unless he is thoroughly acquainted with the writings of physicians during the first half of the seventeenth century. The next great epoch in the history of small-pox is that of inoculation. This was practised for the first time at Constantinople about the year 1700. To Lady Mary Wortley Montague the world is indebted for the introduction of this splendid improvement into medical practice. In 1746 the Small Pox Hospital was founded to enable the poor to participate in a benefit hitherto confined to the rich. In 1798 Dr. Jenner announced the discovery of vaccination. We now pass on to notice some of the more prominent phenomena of small-pox, commencing with the incubative stage or period. This period admits of some latitude. The extremes may be stated at ten and sixteen days. With respect to the eruptive fever of small-pox, it is characterised by the usual evidences of pyrexia—quick pulse, hot skin, pains of back and limbs, scanty and high-coloured urine, and restlessness. In deciding whether such a fever be variolous we are

further assisted by other symptoms; and among these there may be mentioned—1. Intense sickness at stomach, accompanied by tenderness of the epigastrium on pressure—the vomiting yields when the eruption appears. 2. By pain of the back and loins. 3. By the occurrence of severe encephalic symptoms; severe headache, stupor or delirium; somnolency or epileptic fits are noticed to occur in children. 4. Syncope and great prostration of strength. 5. Great anxiety of the præcordia, deep sighing and dyspnœa. Our author now directs attention to the character of the variolous eruption, and in a special manner to the external character and internal structure of the variolous pimple and pustule—to the color of the areola, &c.

He also directs attention to the implication of certain of the mucous membranes in the progress of small-pox. In a great proportion of confluent, and in some semi-confluent cases, the mucous membrane of all those parts to which the atmospheric air gets access, (the nose, mouth, and trachea) is occupied with eruption—sometimes distinct, more generally confluent. The early symptoms occasioned by this mucous complication are as follows: Numerous white points appear on the tongue, palate, and velum pendulum. Hoarseness and alteration of the voice indicate that the same condition extends to the mucous membrane of the larnyx and trachea—there is a great pain in swallowing, and, in bad cases, cough and dispnœa.

The ulterior effects of this mucous complication become very important. The œdematous thickening of the larnyx and the swollen condition of the tracheal membrane have by the eighth day materially impeded the free access of air to the lungs, and the consequences appear in every part of the circulating system. The areola is not crimson. The vesicles on the extremities never acquire any inflammatory areola. On the trunk the areola is dark or claret-coloured. The vesicles do not acuminate, but lie flat. At length the brain becomes affected. A low muttering delirium is observed, as the waves of ill-oxygenated blood begin to circulate. The tongue swells and assumes a purple hue. The bladder loses its contractile power. The extremities become cold, and the patient dies.

The implication of the cellular membrane is next described with its various phenomena and consequences, and then that of the nervous system. He then considers the petechial form of small-pox,—and next as the disease becomes complicated with gangrene, opthalmia, and affections of internal organs, together with the appearances on dissection.

We shall now make a few remarks on the diagnosis of small-pox. The diseases with which, after the occurrence of the eruptive fever, small-pox may be confounded, are measles, febrile lichen, varicella, and secondary syphilis.

1. The papulæ of small-pox are firmer than those of measles. They feel granular under the finger. In measles, too, there is accompanying cough and watering of the eyes. Further, in small-pox, forty-eight hours from rigor to eruption; in measles seventy-two.

2. Febrile lichen is the disease from which small-pox, at its onset, is with most difficulty distinguished. The aspect of the eruption is in both cases nearly alike. The surest and safest grounds of diagnosis are based on the interval which has elapsed from rigor to eruption, and the mode in

which the eruption has developed itself. In febrile lichen twenty-four hours elapse from sickening to eruption; in small-pox, forty-eight. Small-pox almost always appears first on the face. The eruption of lichen is developed, from the first, uniformly over the head and trunk. Besides all this, we must inquire into the prior history of the patient, and the character and course of the incubation.

3. The diagnosis between small-pox and a form of secondary syphilis, in which the eruption passes through the several grades of papulæ, vesicle and pustule, is to be effected by careful inquiry into the whole history of the case and close observation of the progress of the disease.

To follow our author farther through the subjects of these lectures, interesting though they confessedly are, would be altogether foreign to the object of our Journal. For full information on the interesting details contained in them we must refer our readers to the work itself, assuring them that an attentive perusal of its valuable contents will amply compensate them for their time and trouble. The book, in fact, is precisely the one we should have expected from the pen of an author so well versed in the pathology of exanthematous disease as Dr. G. Gregory is well known to be.

On Feigned and Factitious Diseases, chiefly of Soldiers and Seamen. By *Hector Gavin*, M.D. &c.

As all animals have been classed into devouring and devoured, man holding a somewhat commanding position in the first of these; so may human beings be considered under the two comprehensive heads of deceivers and deceived. Which is the most numerous of the two last, it would not perhaps be difficult to decide, but the question is no further pertinent to the subject of our remarks than as succinctly evincing the antagonism that has, and ever will continue to exist, between the general weal and individual selfishness. Through the whole economy of the political and social machinery, this antagonism will be found in as constant relation of action as the extensor and flexor muscles of the body. So long as it exists in moral harmony it may be the source of all virtue, and can be conducive to good only; while an undue force of one of the principles alluded to, will as obviously lead to deception and crime. In proportion then as either force acts, will depend our utility in life, and the amount of reputation that posterity may allow us.

Though class legislation has undoubtedly greatly improved, a time was when the health and comfort of our seamen and soldiers would seem to have been little considered or cared for by authority. Great, marked, and beneficial, is the change that has taken place in this respect. The evils of gross neglect, and bad regulation, rendered the old system intolerable to many. This has not been dwelt upon by the author of the work the title of which heads our observations. He refers indeed to the effects of the Conscription in France, but what was as bad as the conscrip-

tion, our own pressing and recruiting system, no less than the modes once in vogue for enforcing discipline, were equally prolific sources of unhappiness, and of expedients to fly from it. Malingering, skulking (or sham-Abrahaming) Dr. Gavin has shown to be of very ancient origin. It requires no great stretch of retrospection to recall days when the corrective principle of Draco was dominant, not only in our general criminal code, but in our fleets and armies.

Castigatque, auditque dolos, subigitque fateri,

was as much the rule with naval and military captains as with that excellent, but somewhat summary Judge, Rhadamanthus. Punishment was too often as capricious in its cause, as wanton and cruel in its degree and extent. No wonder that this should have been the case with the men, when the officers were liable to the outrage of brutal vituperation and retort, as well as to become the victims of malignant tyranny. The pages of Smollett and others abound in examples, as do those of able writers in our own day. The surgeons and surgeons' mates, in what in many respects is the "ow'r true tale" of Roderick Random, afford a lively idea, but not a very agreeable one, of the treatment that gentlemen of the navy were liable to in the reign of George II. One is represented as chained to the poop, by order of his tyrannical commander, during a terrific sea engagement, while another resorts to a suicidal expedient, in order to escape from his malicious persecutors. If we are not better at the core than our ancestors, we may certainly claim a higher standard of decorum, and all that the first of our lexicographers understood by civility in its amplest sense. During the last thirty years even, to say nothing of a hundred, a glance at our current literature may satisfy even a desultory observer of the correctness of this assertion. To those who have never quitted their native shores, this may not be so obvious, but it is very observable on the surface of manners, to a person returning to England after a long absence. He recognizes an improved tone, as regards manners, appearance and language, in the lower orders. Much of this may be owing to legislation, but the great Archimedes' screw of improvement that impels, is the progress of knowledge, which legislation never precedes but follows *haud passibus æquis*. Of this truth, or rather truism, numerous examples might be given. One will suffice. What is called the Peel bill for the reformation of the criminal code had, long before he appeared on the stage of affairs, been demanded by the spirit of the age, and Sir Samuel Romilly had devoted a great portion of his valuable life to demonstrate its necessity, when the more fortunate politician of the two was comparatively little known. Laws do much, but when not backed by public opinion, they are frequently weak or inoperative for good. Concurrent they are irresistible for good or evil. It was public opinion, by little and little gathering force from its feeders, a rivulet here and a streamlet there, until it formed one strong and broad current, carried reform upon its waves, into the army and navy. Many of the causes of malingering then, such as vexatious and harsh control, and cruel discipline, have ceased. We have no longer the hectoring bearing and abusive language of days gone by, when the vituperative epithet

and the sharp rattan followed each other as surely and quickly as the thunder does the flash of lightning.

The hope of advantage from pension, &c. no doubt is a fruitful source of malingering, but when malingering continues to prevail to such an extent as it has been proved to do, is there not ground for apprehension that some defects still cling to our naval and military system in its internal working? We acknowledge, and gratefully, the immense amelioration it has undergone, even within our own recollection. Not only is the moral improvement of the men sedulously promoted, but their comfort in various ways, and even their amusements, are carefully looked to. Time was when to relieve the tedium of a soldier's life, cleaning accoutrements, and furbishing firelocks and bayonets were deemed the sovereign resource. To be sure, notwithstanding these delectable pursuits, which, repeated day after day, *are* apt to make the soldier hate the very look of his arms, that ought rather to be his pride as the signs of his power—the hospital became a preferable lounge to the barrack or parade, whenever the regimental surgeon could be imposed upon. Man was in those days considered so completely a machine, that merely physical friction came to be looked upon as a sort of necessary process, just as if the polish and brightness of his firelock and bayonet passed into his humanity. So that his arms and spine were undergoing fatigue, he was out of harm's way. The authorities were of the famous orator's opinion, that action, action, action, was everything. Was there a rumour of discontent or unhappiness among the men? Set them to pipe-claying, to learn the goose-step—anything, in short, so that their hands and feet have as much friction as their arms. Provided there was enough and to spare of this gearing and polishing in barracks the very perfection of a soldier's morale was considered as attained. A colonel of the old stamp would have stared at the ridiculous notion of a soldier deriving entertainment from a book, or amusement from a game at rackets or skittles. Acknowledging then how much has been done for bettering the condition of our soldiers and sailors, let us not lay the flattering unction to our souls that all is perfect. Much depends upon the conduct of the officers. To this, and the most careful attention in recruiting and drafting, do we attribute it, that some regiments are models of good government. That others are sadly the reverse is almost wholly the fault of perverse or blundering commanding officers. That men, remarkable either for bad temper or incapacity, should be allowed, on irrefragable proofs of either, to retain command, is one of the effects of our aristocratic tendencies in all departments of government. The experiment has had its full swing, and may some day produce results little dreamed of. We know what its effect was in France! A great deal depends upon the personal bearing of officers towards the men. Without the slightest compromise, the behests of superiors may be sweetened by common urbanity. When avoidable, the men ought, especially in hot climates, to be put as little as possible, on what are called fatigue duties. Sometimes in a tropical latitude a trifle may rouse the soldier to acts of frenzy. We recollect an instance of one who shot his officer dead at the main guard, because he was refused (not by the poor officer but his native servant) a glass of water. In another regiment, two murders of the most deliberate kind occurred in Fort William within a few days of each other, and the

only apparent reason for their perpetration was the annoyance of the unhappy men at having been kept longer than they deemed just or necessary at fatigue duty during warm weather—there were six lives lost in consequence of what may be deemed a passing trumpery irritation. Nothing is trifling, however, that has the slightest tendency to excite the soldier to such fearful deeds, and that he is liable to be so excited at times, in a hot climate, is a melancholy truth of which there are many awful examples on record. In no instance of such sudden outbreaks within our recollection was the plea of derangement ever made out to the satisfaction of the court, when resorted to. The precedent of monomania in mitigation of consequences would by many be deemed a hazardous one in the army and navy. It is a double-edged question, whichever way we view it. To deny the existence of moral insanity, because there may be no obvious intellectual flaw, would be to fly in the face of evidence. To be guarded against its simulation, or being made a convenient plea, is another matter.

The origin of Dr. Gavin's work is another and successful instance that to rouse talent to honourable exertion, a generous stimulus is sometimes required. The work itself appeared some years ago in a less extended form, in competition with many others for a prize proposed by Sir George Ballingall, for the best Essay "On the best Classification of the Feigned and Factitious Diseases of Soldiers and Seamen, &c. &c." It is very properly dedicated to one whom the profession, individually or collectively, cannot too much honour, we mean Sir James M'Grigor. Nearly in our author's own words, the direct scope of the work (which ought to be in every practitioner's hands, more especially the Medical Staff of the Navy and Army,) may be said to be, to prevent the honourable physician being made the dupe of the artful impostor, or guard him against judging too harshly in doubtful cases, and unjustly punishing the innocent, more especially from being himself the instrument of punishment in presumed cases of malingering. The importance of the subject will at once be admitted by the political economist, when it is borne in mind what an immense saving to the country may be made by the sharp-sighted and experienced surgeon who prevents the drones of the service from plundering, and is constantly on the watch to baulk "the Artful Dodgers," who on the pretence of injury or disease, when neither really exists, wish to cheat the State by quitting its service prematurely, in getting smuggled, if they can, into the pension list, which ought to be sacred to its proper objects, instead of an Alsatia for knaves and malingerers to creep into. As the author has shown, disease has been simulated in every age, and by all classes of society. It is not confined to the ranks, for generals and colonels can malinger occasionally just as well as their inferiors. There have been even commissioned officers who have had the good taste to boast that they had *done* the Doctor! Were it only in self-defence and to prevent such dishonourable exultation, the medical officer ought always to be on his guard when he is applied to for a sick certificate. No matter what may be the rank or position of the applicant, before granting such a certificate, the surgeon should be convinced beyond all doubt that there are good grounds for it. He ought to be above the suspicion of being open to wheedling on such a point, even by his own brother, were he to attempt it.

It is not once that we have heard such expressions as "O, very well, since you will not oblige me, I will go to Mr.———, he will give me a certificate without all this fuss." Supposing a medical officer grants a certificate, although not convinced in his own mind of its being absolutely a case requiring one; what is this but knowingly to give the stamp of truth to a lie?

Sallust, in his admirable character of Catiline, observes that, among his other accomplishments, he was, audax, subdolus, varius, cujuslibet rei simulator ac dissimulator."* It is as a simulator that the malingerer shines with Catiline-like flexibility and ability, as our author well illustrates, for dissimulated or concealed diseases do not fall within the province of his work. The motives that induce soldiers and sailors to simulate diseases, though many and various, are thus briefly but comprehensively classed.

"To obtain their discharge from the service, with or without a pension, &c.; to avoid the performance of the duties which are imposed upon them;—to escape some particular service which is disagreeable to them, or to obtain some other that is agreeable; to obtain *or prevent*, their removal from one climate or station to another;—to obtain the ease and comforts of an hospital, &c.—sometimes, though rarely, to bring blame or punishment on an individual whom they dislike;—to avoid an apprehended or adjudged punishment;—to excite compassion or interest; —the hope of gain, &c." 12.

Revenge induces some to magnify slight ailments. This has often occurred in India, where it has even induced the simulation of death. In one instance, a young writer gave a slap to a native servant, who fell down apparently dead. In a great fright he had the body carried over instantly in his palankin to the Honourable Company's Dispensary, where the application of a magnum bottle of very potent liquor ammoniæ to the dead man's nostrils, so astonished his olfactories that he instantly jumped up and bolted! Indeed all classes in India are adepts at simulation, and servants, when they want a holiday, crave leave on the plea of the sudden death of father, mother, or child, which father, mother, or child, or each and all of them will be found, if a record has been kept, to have, like a once noted amateur actor, who was sometimes required to do so on the stage —died over and over again.

"As diseases are feigned for a variety of purposes, so the character of the assumed disability is calculated to suit the occasion. If a soldier wishes to escape or delay punishment, to evade duty of any kind, more especially that of embarking for foreign service, an acute disease is simulated. If, however, the design be to obtain a discharge, with or without a pension, an infirmity of another class is feigned—one which possesses a chronic, incurable character, calculated, if possible, to excite pity and commiseration. With reference to the first class, Hennen remarks, that there are some diseases, the symptoms of which are so obvious to a well-informed medical man, who watches them closely, and at times when he is not suspected, that no artifice of those who pretend to labour under them can deceive him." 19.

---

* According to Commentators, *Simulator* is dicitur qui id esse ostendit, quod non est; *Dissimulator* contra, qui id non esse quod est.

It is of importance to remember that, "In diseases characterized by obscure, variable, or uncertain symptoms, much care should be taken not to be misled; for every practitioner knows that there are some diseases in which there is no change of pulse, or alteration of the natural colour or temperature of skin, or any evident derangement of functions of the organ implicated, to indicate their existence. There are also other diseases, whose symptoms may be imitated by the effects produced by certain drugs, or by the use of certain external applications. It is, therefore, well remarked, that 'an intimate knowledge of the anatomy, physiology, and pathology of the human body, and of the effects of the articles of the Materia Medica, is consequently essential to the medical practitioner, to enable him, in such cases to obviate false conclusions and detect imposture.'"

There can be no doubt but the diminished number of deceptions, both in the army and navy, is attributable, firstly, to the ameliorated condition of the men; and secondly, to improved medical vigilance. The Irish are stated to be the most numerous and expert at counterfeiting disease, next comes the Lowland Scotchman, who makes up in obstinacy what he wants in address; and of the English soldier, it is said to be his least vice. The simulator finds it difficult to give a consistent account of his alleged disability. "By a little address the surgeon can lead him to enumerate incompatible symptoms, or greatly to exaggerate unimportant lesions. *He is constantly prone to overact his part.*" This should never be forgotten, as much of our detective potentiality depends upon it. An impostor too, we learn, unprepared with a set of symptoms, has been detected by the abrupt question, "what is the matter with you?" The nonplussing effect must be rather comical after "the fellow having been led by the leading questions of the medical officer to enumerate symptoms of disease from head to foot." The surgeon should beware of having his patience tired out by the malingerer, or of letting him go with the remark, "He is a useless fellow, a better man may be obtained in his place." Our author very justly observes—"Nothing can be more fallacious than this doctrine; for no sooner does one of the impostors succeed, than two or three more are sure to follow his example, in the hope of obtaining their discharge by pursuing the same plan." In examining inefficient men, the medical officer is warned to pay due regard to their claims, while he devotes the requisite degree of attention to the public interest. Great care should be taken to distinguish between temporary and permanent disabilities for service. Disabled men should be examined without their clothes. Violent measures and language ought always to be avoided. Intimidation can effect nothing with a determined malingerer. "In no instance should means be employed to detect a suspected person which a medical officer would regret having used, were the alleged disability to prove real." This is an excellent injunction. In cases of feigned disabilities of a chronic character, as palsy, contractions, &c. we are advised rarely or never to employ medical means. The rules laid down by our author for determining the reality or otherwise of a disease are exceedingly good; but to state them at length would press too much on our limits. Stress is very properly laid on the care necessary to discriminate between reality and simulation. An instance of the vital necessity of great caution in this,

fell under our own observation. In a regiment of native infantry, doing duty in the field on a frontier part in Bengal, a Classee or tent pitcher was the bearer of a note from the adjutant to the medical officer in charge, (a young man,) stating that he wrote at the request of the commanding officer, who, as well as himself, was convinced that the Classee was shamming in order to evade duty; that they sent the man to be examined, and if he (the medical officer) agreed in opinion with them, as they doubted not he would, care should be taken to have him flogged summarily. The Classee took the note to the medical officer just as he was going the evening rounds of his side. The man was a strong hale stout-looking fellow, of about 35, but with a somewhat heavy expression of countenance. He complained merely of slight headache, and feeling languid. The man looked the picture of health—his tongue was clean—his skin cool, but his pulse was a little slower than the average. The surgeon felt that there was something in the case that required further inquiry, and especially that time should be taken to test whether the slowness of pulse was constitutional or symptomatic. He was ordered to take some opening medicine, and a note was written to the adjutant to say, that, to the best of the surgeon's judgment, founded upon a brief inspection, the man was not well. The poor fellow dropped down suddenly dead in the night, no doubt from apoplexy. No autopsy was allowed by the friends. Perhaps a good large bleeding might have saved the poor fellow. It was, at any rate, consolatory to all parties next day, that he had been sent into hospital instead of being returned bearing a note to the adjutant, that there appeared to be nothing the matter with him, in which case he would have assuredly been punished,* and his death would have been afterwards attributed to such punishment, to the dismay of all parties concerned. Commanding officers, or their staff, ought never to attempt thus to prejudge a case, or to try and bias the medical officer, as it is his province alone to decide calmly and deliberately whether a man be shamming disease or not. Many a man may be very ill, who somehow cannot state his case clearly, though he may appear stout and well. It was so with the Classee. He seemed indifferent in regard to whether he was thought ill or not.

We cannot conform to the rule of Percy and Laurent, 'that we should always incline to consider the case as one of simulation rather than of reality.' Supposing the rule acted upon in the Classee's case, might it not have led to his being flogged? In commenting upon this rule, Dr. Gavin very justly and with good feeling states, "that we should simply endeavour to discover the truth, without being afraid to find a man guilty, and without entertaining a wish that the person under examination should be detected as an impostor."

Such a classification as Dr. Ballingall sought for, or one that would enable us to proportion the rate of pension to be given to soldiers who are to be discharged on account of disease, cannot be obtained, our author is of opinion, by following the arrangement of any nosologist. Accordingly he submits the following:—

* No summary punishment is now permitted.

Classification of Feigned and Factitious Diseases,

Founded on our Means of Diagnosis, namely, on those Symptoms which are referrible to the Feelings of the Patient, and those which are cognisable by the Senses, or acquired Information of the Physician.

Pain.
Nyctalopia.
Hemeralopia.
Amaurosis.
Myopia.
Presbyopia.
Amblyopia.
Strabismus.
Nictitation, Blepharospasmus.
Deafness.
Aphonia.
Dumbness.
Deaf-Dumbness.
Stammering.
Insensibility, Coma.
  Lethargy and Somnolency.
Somnambulism.
Vertigo, Cephalalgia.
Hysteria.
Insanity.
  Dementia, Imbecility.
  Mania.
  Monomania.
   Erreur de Sentiment.
  Moral insanity.
Nostalgia.
Epilepsy.
Convulsions.
Chorea.
Catalepsy, Cataleptic Extasy.
Paralysis.
  Hemiplegia.
  Paraplegia.
  Local Paralysis.
   Ptosis.
Shaking Palsy.
Chronic Rheumatism.
Hæmaturia, Coloration of the Urine.
Phthisis.
Abdominal Tumour,
  Physconia.
  Tympanitis.
Peritonitis, Gastritis.
Syncope.
Palpitation.
Hypertrophy of the Heart, and Pericarditis.
Excited circulation.
Diminished circulation.
Asthma.
Acute Rheumatism.
Lumbago.
Sciatica.
Dysuria.
Incontinence of Urine.
———— the Fæces.
Ischuria.
Lameness—Voluntary Limping.
Disease of the Loins, from Hurts, Sprains, &c.
Chronic Hepatitis, Hepatalgia.
  Acute ————
Intermittent Fever.
Continued ————.
Dyspnœa.
Pneumonia.
Vomiting.
Pyrosis.
Gastralgia, Gastrodynia.
Dysphagia.
Dyspepsia.
Colic.
Malformations, Deformities.
  Lateral curvature of the Spine.
  Gibbosity.
  Obstipation.
  Contractions of the limbs.
  ———— of the shoulder-joint.
  ———— of the elbow-joint.
  ———— of the fingers.
  ———— of the thigh.
  ———— of the knee-joint.
  ———— of the ankle-joint.
Malposition of the toes.
Epistaxis.
Hæmatemesis.
Hæmoptysis.
  Pompholyx.
  Porrigo.
  Erysipelas.
  Scabies.
  Variola.
Gout.
Stricture of the Urethra.
Otorrhœa.
Cancer.
Fistula in Ano, in Perinœo.
Ozœna.
Fœtid Perspiration.
—— Breath.

Ophthalmia.
  Tarsi.
  Membranarum Conjunctivitis.
White-swelling.
Scrofula.
Lupus.
Ulcers.
Factitious Wounds.
  Loss of teeth.
Fictitious Wounds.
  Ecchymosis.
General Indisposition.
Debility.
  Marasmus.
Cachexia Africana.
Diarrhœa, Dysentery.
Dislocation.
Fracture.
Disease of the Hip-joint.
Swelled Limbs.
  Anasarca.
Elephantiasis.
Varicose Veins.
Partial Atrophy.
Skin Diseases.
  Alopecy.
  Urticaria.
  Psoriasis.
  Impetigo.
Polypus of the Nose.
Prolapsus Ani.
Hœmorrhoids.
Jaundice.
Pneumatosis, Emphysema.
Hernia.
Hydrocele.
Scurvy.
Gonorrhœa.
Apoplexy.
Nephritis, Excretion of Calculi, Gravel, and Alteration of the Urine.
Excretion of Alvine Evacuations.
Ascites.
Opacity of the Cornea.
Cataract.
Varicocele.
Sarcocele.
Tetanus.
Hydrophobia.
Fasting.
Animals in the Stomach.
Animals in the Urine.
Vicarious discharge of Urine.
Suicide.
  Poisoning.
  Hanging.
  Drowning.
Death.

Having thus presented the bill of fare to the reader, we must refer him to the work itself for details. We can only afford space to refer very briefly to a few of the items.

Pain is a fruitful field for the cultivation of the malingerer. Here, however, a real sufferer, unless caution were observed, might appear inconsistent. The patient is not always able to specify the precise seat of the pain. Or its real seat may be mistaken by himself and the medical attendant. Thus, scirrhus of the stomach has passed for liver disease. Is there not always a sallowness of complexion in scirrhus of the stomach? The precise seat of pain in some cases of inflammation of the liver terminating in abscess, is sometimes not easily discovered. Watch the suspected simulator when he is asleep, (and of course, completely off his guard,) advises our author. This indeed is a capital precaution in all instances of supposed simulation. There is much reason to apprehend that many sufferers from neuralgic pains have been very unjustly suspected of feigning, and been consequently put to serious inconvenience. A malingerer will be apt not only to shift his pains, but to exaggerate his acting. If written notes are regularly kept of a malingerer's pains and sensations, he will most likely, at some time or other, be found tripping. He who wishes to have accurate recollections of the physiognomy of pain should watch those who really suffer. Every emotion and expression of countenance or voice is wrung with difficulty from real suffering.

There is a fluency, a flexibility, and an impromptuness of groan, look, and spasm about the sham-Abraham, more easily recognised by him who has compared the true and the fictitious in the school of experience, than capable of being described in writing.

Nyctalopia, or night-blindness, is a disease of which but little is comparatively heard in Europe. In the East it is very common among all classes. Sepoys have often, to their own great inconvenience, to fall out of the ranks, and be led by a guide on account of it. Among them we have never met a simulated case.

Amaurosis.—"*There is in the eye and gait of the amaurotic patient an air of uncertainty; he has a staring unmeaning look.*" Impostors avoid things placed in their way. The effect of belladonna are now well understood by the vulgar for purposes of simulation.

Myopia, our author slyly observes, "is a state of vision which is very commonly assumed by society in general, when they wish to avoid the sight of an object that is disagreeable, or a friend that is objectionable."

Deafness originates a remark that is a pendant to this. "It is," we are told, "occasionally assumed in our courts of justice, and like Myopia, is a common resource of society to avoid hearing any thing unpleasant." It may be added that it is sometimes resorted to for the purpose of hearing more than the speakers might bargain for, if they did not believe the listener deaf. Cadwallader, Crabtree, and Sir Mungo Malagrowther has each a purpose in his deafness, representing a class thus delineated by the hand of a master, though differing in style. Those who pretend to *deaf-dumbness* have truly, according to our author, a very arduous task to play. The knaves may perhaps be literally caught napping, or, in other words, talking in their sleep. Women, Fodere says, have been the most successful simulators of deaf-dumbness. What heroism! What wonderful resolution to pass, even for a day, for deaf and *dumb!*

Insensibility.—The remarks under this head are a fine instance of the practical application of the principles of inductive reasoning. The following anecdote shows how the malice of a wretch may bring people into trouble.

"A servant, on receiving a trifling injury from her master, a clergyman, ran to the door, said she had been almost murdered, and to add strength to her assertion, pretended to fall into an epileptic fit. She was carried as one expiring to an hospital, and lay for ten or twelve days, without showing the least sign of sense or recollection. The clergyman and his wife were dragged to gaol—popular indignation ran high, and his property was destroyed; terror, and shame of such a public exposure, brought on an illness which placed his life in imminent danger, and greatly injured his fortune. Mr. Dean, on being called in to consultation, soon detected the imposture, and the woman almost immediately disappeared." 108.

A state almost amounting to syncope may come on, suddenly depriving a man of the power of speech and movement, but not of consciousness.

It may last only a minute or so, and yet overtake one during the performance of a responsible duty, as while a man stood sentry. There is reason to believe that people have been involuntary witnesses of crimes of the darkest kind, but have been deprived of the power of giving aid or alarm, by a catalepsy of terror. Somnolency at times is very overpowering, and sleep occasionally is so profound, that it is difficult to waken the person. We remember a medical man, who was so overcome with sleep after a hot night at Cawnpore in India, that an officer who ran to call him to give his assistance in a case of accident at a firing parade, did not succeed in rousing him. But for the friendly consideration of the officer, the Medico might have had to defend himself before a court-martial. It was a case of torpid exhaustion from heat. The party in general slept very lightly, and when on this occasion he awoke, was horrified at finding that all efforts to rouse him at a call of duty had been in vain! *Somnambulism* is not likely to be much simulated by soldiers or seamen. He who has once well observed the blank expression of the somnambulist's face, and the ghastly character of the open and half-open unspeculating eyes, and heard the hollow tones of his voice, with the blurred articulation (so to say) so different from his ordinary tones, and attends to rhythm of respiration, is not likely to be imposed upon by a pretender.

Vertigo and Cephalalgia are frequently simulated. The most intolerable of all headaches would seem to be the cerebellar and basilar. A frequent symptom is a feeling as if the patient would fall backwards, but for an exertion against tendency. In all severe headaches there is less or more drooping of the upper eyelid, and a peculiar heavy expression of the eye itself—there is also a frown or congestion of the brows. In bilious headache, a drawing down of the angles of the mouth may be observed; it is a movement of incipient nausea; there is also a redundancy of saliva.

Hysteria.—The appearance of symptoms simulating such an affection in a soldier would excite the utmost suspicion. "We might almost," our author thinks, "as readily expect to find him suffer the pains of labour or the effects of protracted suckling." We are not at issue with this as a general remark, but to deny that a man may be attacked with a train of symptoms either constituting a genuine hysteric paroxysm, or something very like it, would not be accurate. We use the term hysteric, of course, in a sense different from its etymology, for want of a more expressive one, just as we might speak of a masculine woman. In one of the instances of male hysteric affection the subject was a brother officer, a fine manly fellow to boot. He had been suffering previously from dyspnœa caused by contusion and concussion of the chest from a heavy fall. This was followed by convulsive movements and alternate fits of laughter, sobs, and tears, ending in apparent insensibility. Hartshorn was administered with beneficial effects. The person at the time was labouring under considerable mental depression; there was the sense of globus, and all idea of simulation was quite out of the question. As respects the fair sex, Dr. Conolly urges with great truth that unhappy temper and violent irritability of hysterical females, combined with their constitutional tendency

to the hysteric paroxysm, is in some instances sufficient to bring on, almost at the will of the patient, attacks which occasion much concern to their relatives or friends; while Dr. Copland has no doubt of the fit being often repeated at pleasure, almost as readily as tears may be shed, by recalling or adverting to various feelings and emotions. There is no warning we would more emphatically impress upon young females than to resist with all their strength and resolution the first hysterical tendencies as they would the foul fiend. Young and foolish women are as anxious sometimes to commence their hysterics, as boys are to sport coat-tails or an imperial. The thing indicates promotion, and advancement in social importance. First comes a desire to interest the feelings of beholders especially of the other sex, and when anything crosses the young beauty's will and pleasure, we have a fit. The heroines of novels always have fainting or other fits, and why should not she? It is *so* interesting! It is aristocratic into the bargain. No doubt this sort of exhibition, when well conducted, *will* interest, and it is so delicious to excite interest! Men have sacrificed their lives to the passion of exciting interest. We need not rummage the pages of antiquity, for examples, like Peregrinus, or Empedocles. Modern Paris will furnish us with plenty of examples. Alas! the interest of hysteria rapidly wanes. That which was produced at will to serve some trivial purpose, becomes at length a confirmed habit of the constitution—that clings to the pure heroine as obstinately as the old man of the sea did round Sinbad's neck. If a woman who has literally worked her own nervous system into this wretched state of excitability could but have a correct notion of how great a bore (no other word will express it so well) she becomes to her own friends, to say nothing of society, and how her presence in the circle is dreaded as a sort of Banquo's ghost, that must produce "most admired disorder"—she would at least exert her will, and make an effort to get out of the meshes of the tyrant. We beg not to be misunderstood, for these remarks apply not to genuine and unavoidable disease, for which we must ever feel sincere sympathy, but to that which commences in wilfulness and affectation. Satisfied as we are that many cases might quietly evaporate without being obtruded on general notice, and that much of the liability to this spurious affection is fostered by injudicious sympathy, we would earnestly counsel a reserve in the expression of such. This may appear harsh, but we say it advisedly, and with a conviction of the real sufferings to which such exhibitions will eventually lead. We would fain exorcise the demon from the parlour, drawing-room, and boudoir. We record our convictions on this head with a deep sense of the high dignity of woman as man's helpmate, no less than of the misery she occasions when she swerves from the honest grace of her nature in striving to produce effect by means wholly unworthy of her, and to captivate us by storm, not by means of her native charms, but through the turbid media of wild emotion and spasm. Let not the first attacks of hysteria, then, in the young and strong, be looked upon with mistaken tenderness: harsh as the advice may sound, let salutary austerity rather mark the demeanor of friends. Let the thing if alluded to at all, be spoken of as what might have been prevented by the power of the will. This will set the patient upon her mettle to resist the next occasion as much as she can, and the habit of

resistance may thus complete a cure. Speedy recovery will sometimes follow declarations made to surrounding friends in presence of the apparently unconscious patient. We remember a case where a poor fellow was almost driven distracted by the constantly recurring hysterics of his wife. Somehow a little matrimonial huff always preceded the exhibition. When called for the first time to her aid (for she had been long under the care of another practitioner) we could not help suspecting that at least three-fourths of the affection might be placed to the account of simulation. Having gone through the usual preliminaries, we expressed a conviction, that throwing a tub of cold water over the patient just as she lay, clothes and all, in bed, would immediately restore her to sensiblity. A large tub was accordingly brought to the bed-side, and pailfuls of the cold element were poured in. This was sufficient; she opened her eyes and sat up quite restored! The bath was never required, though in her hearing we gave strict injunction to her husband, always to have recourse to it when she was so affected. Even where the affection may be genuine, but consciousness not wholly gone, some manœuvre of this kind may produce a good effect.

Mania, &c.—All between pages 121—176 is a very valuable contribution to medical literature. How vividly true these few descriptive words respecting the advent of insanity! "A change in the appearance of the eye precedes incoherence of language; there is a peculiar motion of these organs, *or protrusive and wandering motion peculiarly tiresome to behold.*" "The stools are *white*, small and hard;" this must have partly led the ancients to their conclusion that functional disease of the liver had much to do with insanity. During the war it seems that, amongst prisoners and those kept longer in the service than they desired, all the forms of disordered intellect were feigned. Most sincerely do we concur with Dr. Gavin in the opinion that, "a medical officer can never exercise too much caution in giving an opinion upon doubtful cases of mental disease, more especially where the opinion may involve a breach of discipline and consequent punishment." More frequently than may be generally supposed, simulation is suspected in mental disorder, and much injustice thus done to those who have a touching claim upon our commiseration. An officer, now no more, who served abroad, evinced symptoms of insanity. He was considered by some of his brother officers as shamming on purpose to get away from his regiment, and to be sent to England. The suspicion was cruel, as was proved by the event. On the voyage home he usually walked the quarter-deck, with a bugle horn suspended round his neck. One day when the sea was running high, they spoke a French ship which came close to them. This poor fellow, clad in a long great coat and military cap, walked out at the gangway into the sea, blowing his bugle horn. He was immediately carried a long way a-stern, and before aid could reach him he perished, blowing his bugle horn to the last, and buffeting the waves with his right hand! We would add to the caution another, in regard to hasty conclusions respecting intoxication. Persons staggering under nervous exhaustion, or excitement, have been accused of intemperance when there was no ground whatever for the aspersion.

No man should be pronounced a lunatic until after strict, careful, and,

in some instances, repeated examinations by more than one. It may admit of doubt whether the examination is sufficiently formal at some of our colonies. In India we have heard that in more than one instance authority has decided the question of an official's insanity, mainly upon the opinion of a single medical officer. This is altogether wrong, and even suspicious, when the functionary may be in possession of an important and lucrative office, suspension from which might prove the ruin of himself and his family. It is no light thing to determine upon unsoundness of mind, and medical men may happen to be quite as ignorant of the philosophy of the subject as their neighbours. A mixed commission of medical and other officers ought always to be appointed for inquiry in alleged cases of insanity; and, as the affection may prove but of a temporary character, every facility should be secured for the patient being again and again brought before the committee. For a high authority to express an opinion upon such a case before the opinion of the committee was officially reported, we should hold not to be merely indiscreet, but indecent. Simulators cannot feign the sleeplessness of insanity. We recollect the case of a young man in whom delirium tremens, brought on by drinking, terminated in insanity of rather a mild and jocular character. For six weeks previous to his death he never slept one wink. The most powerful narcotics in large doses failed to procure even an instant's repose. How terrific is this simple historic fact alluded to by our author!—"Chiaggi saw a lunatic who had sat for twenty-five years on a stone floor, beating the ground with his chains, without leaning by day or night." There is nothing in the pages of the Inferno much more tremendous than this. Insensibility to pain and cold is one of the most striking phenomena of insanity. An insane man, for instance, will tear off his clothes when the weather is piercing cold. He will also, from the erect position, drop suddenly on his bare knees upon the stone or brick floor of his cell, and repeat the feat several times, his knees coming with a force on the bare stones, that would smash a sane man's joints. The sense of smell is frequently depraved in the insane, and they are apt to fancy putrescent odours, and to attribute wild causes for their existence. Is it possible that this may be attributable to their perception of the maniacal odour in themselves? The hair and the skin have often a characteristic harshness and dryness to the feel. In simulators of sufficient cunning and resolution, feigned insanity is carried on when they are alone as well as when in the presence of others; as was shown in the case of one of two brothers, who committed a high-way robbery near Edinburgh. One, on being brought up for trial, was found to be insane. The other was convicted and executed. The faculty of the modern Athens were divided in opinion respecting the survivor. The majority, if we recollect right, decided that he was insane. This excellent actor (for such he proved) being ordered to be discharged and sent to his friends, left the Tolbooth (it then existed) the day after the receipt of the order, as sane as any man in Edinburgh. According to Ray, when the disease comes on suddenly, abruptly, and violently, and there be the least ground for suspicion, it may be safely concluded that the case is one of simulation. Genuine insanity, however, may come on in this sudden manner. A most estimable member of a family of rank, without the slightest premonitory sign, walked into the drawing-room, and struck his mother a violent blow

on the face. He never recovered. The remark of Pinel and others have shown that a sanguinary instinct may be accidentally developed in the most virtuous man, and may carry him, often irresistibly, without any reasonable motives, to the most terrible excesses. Other instincts may be similarly developed. It has been stated of the notorious duellist, "fighting Fitzgerald," that, previous to a wound in the head, he was a mild and amiable man. Be that as it may, injuries of the head produce curious modifications of character, just as concussions of the body from gunpowder have been observed in some instances to have brought on obesity and a general stoutness. We were acquainted with two officers who attributed their extraordinary size after the event to the circumstance of being blown up, the one in Madras Roads, and the other in storming a fort. One person who received a severe concussion of the brain by a fall from his horse, became soon after capricious and cold to old friends, with whom he had been formerly most cordial. Another gentleman, who, up to his 40th year, had been noted for steadiness, respectability, and sobriety in his profession (the law,) was severely wounded and concussed by a fall from his horse—and became an incurable drunkard. The recollection of such things ought to make us charitable towards our neighbours' failings. We know not what may be at the root of them! "Dr. Genget believes that madmen have died upon the scaffold." If Macnaughten was mad when he shot Mr. Drummond, what are we to think of Bellingham's execution? The criminal, we are told, has always a motive. What was the motive that caused Nicholson to murder Mr. and Mrs. Brown? Women have been hanged for child-murder who ought to have been sent to an asylum. Even some of the inferior animals have cerebral excitement or delirium after parturition, which leads them to destroy their young.

The pen of genius has given us a fine illustration of moral insanity in the character of De Montfort.* The actions of some of the Roman Emperors were those of madmen—Caligula, Heliogabalus, and Commodus, would, in our day, instead of being slaughtered, be consigned to the care of a keeper—but in that far olden time no one dared "bell the cat," and within the recollection of some among ourselves no more humane plan of restraining that madman the Emperor Paul suggested itself, than the coarse one of a halter. Despots, therefore, have cause to dread insanity more than common men; for as old Caustic says, respecting his nephew Tangent, in the Comedy, "Give him plenty of straw—plenty of straw"—but with a poor Autocrat of all the Russias, when he becomes queer, the rule is "give him plenty of *sash*." Of so much importance is the comprehensive subject of madness, in all its phases and varieties, that an academic chair ought to exist in every medical school, for teaching it as a distinct branch of science.

Of *Nostalgia*, we have seen several real but no feigned cases. Almost all who fell under our observation, were highlanders, and some of the Indian hill-tribes. In one case, the patient was a Frenchman from Brittainy, who had not the means of returning to his native land. It terminated in insanity of a mild character, closed by death. Those affected with Nostalgia are reserved and wrapt up in melancholy contemplation. They do not willingly commence about the object of their yearning.

* Joanna Baillie's Plays of the Passions.

Epilepsy.—In detecting its simulation, this remark of an author should be borne in mind—"the false shame of true epileptics, and the want of shame of feigned ones, has been taken notice of by several writers. Suggesting symptoms is an excellent trap in this and other simulations. We cannot approve of the employment of "seven or eight drops of croton oil," for the detection of imposture, as used by a Mr. R. With many it might lead to much more serious results than running to the water-closet. In all doubtful cases, the practitioner should take the side of mercy. The following remarks on Hemiplegia are of practical value.

"In suspicious cases of hemiplegia, our inquiries must embrace the origin of the attack, its nature and course. Whether arising 1, from apoplexy; 2, or likely to precede it; 3, whether characterised by previous symptoms, such as pain in the head, disorder of the intellectual powers, spasmodic twitchings; 4, whether gradually supervening in persons in advanced life; 5, whether preceded by a train of anomalous and perplexing symptoms, having a relation to chorea, or fits of an epileptic character; or, 6, whether succeeding at some period after the receipt of an injury.

"In the attack itself, if with the loss of voluntary power over the upper and lower extremity, we do not recognise paralysis of the side of the face, a drawing of the mouth to the sound side, more or less upwards; a curve of the tongue when protruded, the convexity being towards the affected side; an increased dilatation of the nostril of the sound side, which is not equalled by that of the paralysed, when a long inspiration is made; the peculiar pointing of the foot when it falls, as it were by its own gravity; adduction of the affected arm, and slight flexion of the fore-arm, wrist, and fingers: we have every reason to believe the case pretended.

"In pretended hemiplegia, asserted to be the result of an injury to the head, the simulator is not likely to be aware that the paralysis should occur on the side opposite to that injured." 215.

For the benefit of our less experienced readers, some instances of detection may be mentioned.

"Malingerers pretending to have lost the use of their limbs, have been detected by putting them, without their knowledge, under the influence of opium, and tickling them when in profound sleep; or by binding the sound arm to the side, and irritating the nostrils during the night with a feather.

"They have betrayed themselves by using the limb on their first awakening, before they recollected themselves.

"A case is related where a man, pretending to have lost the use of the extensor muscles of the right hand, was detected by his gradually raising his arm as far as the extensor muscles could carry it, on the near and nearer approach of a red-hot poker.

"On an alarm of fire being given, an individual, who for two years had pretended paralysis of the lower extremities, and endured everything that medical skill and suspicion could suggest, saved not only himself, but his trunk and clothes.

"One man was detected by rubbing his feet with cowhage. (*Dolichos pruriens.*) He walked and groaned all night, and next day reported himself fit for duty.

"Dr. Davis, at Chatham, knocked gently at the dusk of the evening, on the window of one who could not move, and had lain in bed for a month. On calling him gently by name, he was at the window in an instant." 220.

In Smollet's Humphrey Clinker, Micklewhimmen is an exact prototype of the malingerer roused by the alarm of fire.

Rheumatism.—The Chronic, especially, is a favourite speculation of the malingerer. Our author's remark about "a look of delicacy," is a very important one, and we recollect not an instance of the genuine disease where this "look of delicacy," as it has been happily called, was absent.

Enemesis.—In endeavouring to detect its simulation, the course adopted by even so high an authority as Fodere, (page 235,) strikes us as objectionable. The application of moxa to the scrotum (page 236,) we hold to be an outrage.

Lameness.—Under this head occurs a very instructive case.

"A street porter, after a fall, began to complain of pain stretching along the whole outside of the thigh. The pain was much aggravated by motion, so that he could not walk across the yard without a crutch. The most attentive examination, scrupulously and laboriously made, could discover nothing deviating from the ordinary structure and appearance; nor was there any general affection of the system. The patient was the object of suspicion. It was a severe Winter—employment for porters was said to be scarce—the lodging and food of the infirmary were comfortable—and the alimony of a benefit society was accumulating in his favour. He readily submitted to the most violent counter-irritants, but without acknowledging any relief. The only remedy which relieved the pain being Perkins's metallic tractors (then in vogue) increased the suspicions previously entertained. He was dismissed from the hospital with *simulation* affixed to his name on the records, and he was struck off from the rolls of the friendly society. Two weeks after his dismissal, he died of apoplexy. The thigh was inspected. The cartilage covering the head of the femur was partially destroyed, and purulent matter, to the amount of two ounces, was found in the cavity of the joint. This case occurred in the Infirmary of Edinburgh, about thirty years ago, and was under the case of Dr. Duncan, assisted by Dr. Bateman." 240.

The following extracts show the ingenuity of malingerers.

"Fever, or rather febrile symptoms, may be induced by the use of various stimulants—as wine, brandy, cantharides, &c. Tobacco, whether taken internally or introduced into the anus, quickens the pulse, and produces an appearance of general indisposition. Hutchinson has found, by this drug, (in a simulated case,) the pulse small and rapid, accompanied by considerable emesis. I have been informed by Dr. Thompson, R.N., that he has seen this drug frequently made use of to simulate a paroxysm of fever.

"Fodere states that he has observed a feverish state of the system induced by violent exercise, which the authors of the *Cyclop. of Pract. Med.* have also seen used for the purpose of carrying on this fraud. A paroxysm of fever is said to be excited by the introduction of a clove of garlic into the rectum; and Zacchias says that the seed of henbane, when drank, excites fever, 'but it also excites the mind, and renders men frenzied." Acrid kinds of food, and drugged spirits of wine, also produce this effect.

"The tongue, in order to imitate the appearance it presents in fever, has been covered with chalk, pipe-clay, tobacco, brick-dust, soap, flour, whiting from the walls, &c. The apparent bilious tinge of a coated tongue may be caused by chewing a little gingerbread. It is always easy to detect this circumstance, by causing the patient to wash his mouth well with tepid water. The urine is rendered of a pale colour by dilution with water, or, of a highly ammoniacal odour, by long retention." 253.

Such a statement as the following, ought to put all medical officers on their guard.

"There are several instances on record, where a board of medical officers has recommended recruits to be discharged from the army, on account of alleged great deformity; who were, in fact, remarkably well-made men, and were afterwards re-approved." 267.

In our author's chapter on Hæmoptysis, occurs a most instructive case.

"A soldier, pretending illness, asserted that his complaint arose from blows received from the serjeant-major at drill, to whom he bore an ill-will; the fauces were slightly reddened; in a few days the throat became more inflamed, and he was utterly incapable of swallowing anything but liquids. This was followed by ptyalism: he soon began to spit blood of a slight scarlet colour, but without cough; this increased in quantity daily. In a short time he was observed to be constantly spitting or hawking up blood, and became very white and emaciated, till, in a day or two, sudden hæmorrhage carried him off. On opening the body, Mr. Guthrie found an instrument lying across the commencement of the œsophagus, composed of two half phial corks, fastened together by a strong thread, having previously each had three pins thrust through them, so that the heads of the pins were applied to each other back to back, the points sticking out beyond the cork, forming a sort of chevaux-de-frise; this, it is presumed, he covered with fat, and attempted to swallow, but, the point of a pin catching, the efforts to swallow turned the machine across. In this situation, the points of the pins were close to the carotid arteries, and having by degrees given rise to ulceration of the œsophagus, they wounded them on both sides; every elongation or pulsation of the arteries having brought them against the point of one or more of the pins, the marks of which were observable in several small holes of different sizes on the sides of the vessel; these holes gradually increased by ulceration till they gave rise to the fatal hemorrhage. The arteries and pins are in the possession of Dr. Hooper.

"I have been thus particular in the symptoms and history of this case, as it shows the difficulty of diagnosticating the cause of some factitious diseases, and consequently the difficulty of treatment; the man denied imposition to the last. Sir George Ballingall, in his Lectures, (1836-7) mentioned that a pin accidentally swallowed produced a similar result to that of the foregoing case. Sometimes impostors put into the mouth pastilles coloured with carmine, and prepared with acid substances, which excite the salivary secretion. Some pretend this disease by the aid of a small piece of Armenian bole placed beneath the tongue. Brick-dust, and vermilion paint have also been employed for the same purpose. Beck quotes a curious case under the head of *cachexia*, which properly belongs to hæmoptysis. One Henry Moor Smith, a most accomplished villain, while in the prison at Kingston, began to spit blood, had a violent cough and fever, and gradually wasted away, so that those who visited him supposed that his death was rapidly approaching. This continued for a fortnight, and his weakness was so great, that he had to be lifted up in order to take medicine or nutriment. A turnkey unfortunately, however, left the door of the prison open for a few moments, in order to warm a brick for his cold extremities; on his return *Smith had disappeared.* On again being put into prison, he feigned cachexia, hæmoptysis and epilepsy, but with no success. He confessed that he pretended to raise blood by pounding a brick into powder, putting it in a small rag, and chewing it in his mouth. He contrived to vary his pulse, by striking his elbows; and said he had *taken the flesh off his body in ten days by sucking a copper cent in his mouth all night and swallowing the saliva.*" 288.

Here, however, we must bring our remarks and extracts to a close. The work may be considered a standard one. We recommend it to such of our readers as desire to become acquainted with the impostures of malingerers.

On Healthy and Diseased Bone; according to the Investigations of *Frerichs, Marchand, Nasse, Ragsky,* and *Simon.* (Beiträge zur Physiologischen und Pathologischen Chemie und Mikroscopie, v. Dr. *Fr. Simon.* Band 1. Lief. 2. Berlin, 1843.)

The examination of the bones extends as well to their combustible as to their incombustible constituents. The mode in which the latter are deposited in the structure of the former, must necessarily be taken into the account; for this reason, a microscopical must always precede the chemical examination of the bones, more especially when we have to deal with pathological changes. The organic material of the bone must be examined, as to whether it yields jelly (leim) or not by boiling; whether this jelly is quick or slow in forming, whether it is gluten or chondrin; or whether it manifests any other important property on the application of re-agents. This watery decoction may also be examined with advantage to ascertain the quantity of alkaline sulphates or phosphates, or even of earthy phosphates, by boiling for a considerable time in nitric acid, filtering, and then testing with ammonia for earthy phosphates, with a barytic salt for sulphuric and phosphoric acid. The other preparatory steps we shall not detail, as they are only interesting to the mere chemist.

On Healthy and Diseased Bone.

On the Subject of Healthy Bone, several experiments have been instituted by Frerichs, (Annal. d. Chemie, u. Pharmacie, Septbr. 1842) and by Marchand (Journal f. Praktische Chemie, Oktbr. 1842.)

In order to ascertain whether the composition of bone is essentially invariable, Marchand experimented on the thigh-bone of a man thirty years of age, after first divesting it of the periosteum and fat. The result of the analysis coincides so closely with the results obtained some years ago by Berzelius, that the invariable composition of the compact bones at least seems extremely probable. These results were as follow:—

	Berzelius.	Marchand.
Cartilage perfectly soluble in water	32,17	27,23
„ insoluble in hydrochloric acid	—	5,02
„ soluble „ „	—	1,01
Vessels	1,13	—

	Berzelius.		Marchand.
Basic phosphate of lime with a little fluoride of calcium	53,04	..	—
Basic phosphate of lime	—	..	52,26
Fluoride of calcium	—	..	1,00
Carbonate of lime	10,30	..	10,21
Phosphate of magnesia	1,16	..	1,05
Soda, with a little muriate of soda	1,20	..	—
Soda	—	..	0,92
Chloride of sodium	—	..	0,25
Oxide of iron, oxide of manganese, Loss	—	..	1,05
	100,00		100,00

As the results of the examinations hitherto made, with respect to the relative proportion of the organic constituents to the incombustible residue in the bones of various parts of the body of one and the same individual, as well as in the bones of persons of different ages, evince but little correspondence, Frerichs took up the investigation of the subject once more. The bones well-cleansed and divested of periosteum, were comminuted, the fat was removed from them with ether, and they were dried in the oil-bath at a temperature of from 130° to 140°, as long as any loss of weight manifested itself; then a determinate quantity was calcined in a platinum crucible, and the carbonic acid, which may probably have escaped by the heat, was compensated with carbonate of ammonia, and the quantity was again weighed.

The experimenter employed bones which had been previously subjected to a maceration by means of lime; in this way those bones were avoided, in which a portion of the cartilage was destroyed in consequence of this treatment, as well as those which may have inclosed in their cavities any part of the lime employed in macerating; the bones of the adult belonged to one and the same individual. The cortical and medullary substance were taken equally for the purpose of analysis.

	Inorg. Consts.		Org. Consts.
Parietal bone of an adult	68,5	..	31,5
" " a child three years old	66,3	..	33,7
Petrous portion of temporal bone of an adult	70,2	..	29,8
Inferior maxilla of an adult	68,0	..	32,0
" " a child three years old	62,8	..	37,2
Sternum of an adult	64,7	..	35,3
Rib	65,3	..	34,7
Humerus of an adult	68,3	..	31,7
Humerus and ulna of an eight months' fœtus	63,2	..	36,8
Radius of an adult	66,3	..	33,7
Radius of a boy ten years old	65,5	..	34,5
Tibia of an adult	66,2	..	33,8
Fibula of an adult	66,5	..	33,5
Carious excrescence of another fibula	61,2	..	38,8
Metatarsal bone of an adult	65,9	..	34,1
Patella of an adult	63,7	..	36,3
Body of a lumbar vertebra of an adult	60,5	..	39,5

From these investigations the author infers—

1st. That the quantity of lime contained in the bones of different parts of the body of one and the same individual is different.

2d. That the fixed salts are so much the less, in proportion as the medullary canals and cavities increase, and accordingly less in the spongy bones than in the compact bones; however the experimenter seeks for the greater quantity of organic matter contained in the spongy bones, not in a greater quantity of cartilage, but in that of the membrane and vessels, which line the medullary cavities and canals.

3d. That the inorganic constituents increase with age. Schreyer found in the bones of the child 48,48, of fixed salts, in those of the adult 74,84, in those of the old man, 84,10; so considerable an increase of inorganic matter the author could not discover in the adult, as appears from the preceding series of experiments; for the difference here amounts to only from two to five per cent.; the proportion of the inorganic substance in the humerus and ulna of an eight months' fœtus where this amounts to 63,2 per cent., and that in the humerus of an adult, where it amounts to 68,3 per cent., is particularly striking.

4th. That the quantity of inorganic substance in the bones is greater than is stated by Rees and some others, probably because in their investigations the water so obstinately retained by the bones had not been completely removed.

The author instituted an experiment in order to ascertain after what manner the carbonate and phosphate of lime are distributed in the bones, or deposited one beside the other, whether the one combination is found exclusively in the osseous corpuscles, the other in the structureless intermediate substance. From a thin lamina of bone in which the osseous corpuscles, and their radiating ramifications were plain to be seen, the cartilage was carefully extracted with a weak alkaline ley, the lamina was cleansed, and moistened with a solution of nitrate of silver. Beneath the microscope the substance was now observed to present everywhere a uniformly yellow colour, a proof that the carbonate and phosphate of lime were equally distributed quite through. In order to determine the question, whether the calcareous salts are chemically combined with the cartilage in the structureless intermediate substance of the bones, or mechanically distributed therein, the experimenter tried such a combination of phosphate of lime with gelatine by mixing a solution of common gelatine and basic phosphate of lime in hydrochloric acid and causing precipitates by ammonia: the precipitate obtained contained 18,5 per cent. of gelatine; when a similar mixture was prepared with a gelatine obtained from bone cartilage, wherein the latter (the gelatine) was applied in excess, from three experiments a mean of 26,5 per cent. of gelatine was obtained. This proportion seems to countenance the idea of a chemical combination of the gelatine with the bone-earth; if one adopt the atomic weight of gelatine as determined by Mulder, a combination of one atom of bone-earth and one atom of gelatine must contain 26,2 per cent. of the latter. In order to discover whether the proportion between the carbonate and phosphate of lime continues the same in the spongy and compact bones, analyses were instituted of the two species of bone of one and the same individuals. The results were—

	For the Spongy Bone. 1.	2.		For the Compact Bone. 1.	2.
Organic substance	38,22	37,42	..	31,46	30,94
Earthy phosphates	50,24	51,38	..	58,70	59,50
Carbonate of lime	11,70	10,89	..	10,08	9,46
	100,16	99,69	..	100,28	99,90

From this it seems to follow that, in the compact bones and in the spongy bones, the relative proportion between the earthy phosphates and carbonate of lime is not entirely the same: in the former, of the sum of both earths the earthy phosphates amounted to 86, and in the other to 82 per cent.

Bones which have been a long time exposed to atmospheric influences, change no doubt, yet not essentially, more especially if they are covered with earth; the beds in which they lie have some influence on their composition, as follows from two comparative analyses made by Marchand with bears' bones, obtained from caves, the one of which lay near the surface, and the other at a considerable depth under ground. The analysis of the deeper laid bone is marked 2, that of the bone lying at the surface is marked 1; the upper thigh-bone of a fossil deer was also examined by Marchand, the analysis of which is marked 3.

	1.	2.	3.
Animal substance	4,20	16,24	7,25
Earthy phosphates	62,11	56,01	54,15
Earthy carbonate	13,24	13,12	19,26
Earthy sulphate	12,25	7,14	12,24
Fluoride of calcium	2,12	1,96	2,08
Phosphate of magnesia	0,50	0,30	2,12
Silicic acid	2,12	2,15	—
Oxide of iron, oxide of manganese, soda, and loss	3,46	3,08	—
Oxide of iron, oxide of manganese, and loss	—	—	2,90
	100,00	100,00	100,00

From these investigations it follows that, with the decrease of animal substance, the quantity of the carbonate of lime increases; further, in all the three analyses the quantity of the fluoride of calcium is much more considerable than in the bones of animals of a more recent date.

ON DISEASED BONE.

Several articles have been published of late years on diseased bones; of the most valuable of these I shall here present an analysis; a series of experiments instituted by Dr. Ragsky, have been published by Rokitansky in the second volume of his pathological anatomy; other experiments have been made by others, more especially by Marchand, Ephraim, Nasse, whilst I myself have directed my attention to the disease called Osteoid.

It will probably not be unacceptable to the generality of my readers, if, in the first instance, I present to them a condensed analysis of the ob-

servations made by Rokitanski, who has deserved so well of pathological anatomy, concerning the external characters and internal structure of diseased bone.

1. *Exostosis.*—The compact exostosis appears as a plano-convex knob that has been as it were glued on, which frequently exceeds in hardness and density the bony substance to which it is attached; this, from the very commencement of its formation, possesses equal density, so that the very smallest miliary excrescences, being equally dense as the largest, never appear spongy, and continue their growth in such a manner that the newest strata soon pass into the state of ivory density. They vary in size from that of a smoothened millet-seed to that of a hazel-nut; their surface is generally even, sometimes also uneven, but always smooth, and, as it were, polished; if it grow beyond the ordinary size, it presents sometimes a horny knob, sometimes knobs of a more or less cylindrical form; the colour of these compact exostoses is white, yellowish-white, and whiter than the bone to which it is attached. 2. The spongy exostosis presents a tumour of a cellular texture, filled with marrow, and lined by a compact lamella, as a covering; it is developed sometimes from the compact, sometimes from the spongy substance of the bone; the external covering passes into that of the bone itself. Spongy exostoses are also met, which within the compact external covering exhibit not only the spongy tissue, but also a regular medullary cavity, which communicates with the tubus medullaris. After the spongy exostosis has continued for an indeterminate time in its proper structure, an increase of mass, a sclerosis takes place in it, in various degrees and to various extent; it acquires a compact external covering of considerable density by a stratum of spongy substance, or a regular medullary cavity is inclosed; it becomes also equally compact to a considerable depth in several places, nay, even all the way through.

2. *Osteophyte.*—Well-defined lines of distinction cannot be drawn between exostosis and osteophyte; still the latter has so many obvious peculiarities, that in the generality of cases it may be readily distinguished from exostosis. Contrary to exostosis, the osteophyte appears as a bony structure, which in most cases involves extensive portions of a bone, and covers it in various forms. The osteophyte appears velvet-like and villous when it covers the bone like a ring, or a stratum from one to two lines thick, which consists of fine fibrils and lamellæ, and thereby puts on the appearance of velvet or of a fine felt. Whilst it is growing thicker, it acquires a smooth external covering perforated by numerous fine pores, and at some depth it acquires an evident lamellated structure. The colour of this osteophyte in the recent state is blue, rose-red, inclining to yellow, a dirty white, or of a colour blending white with a silken or asbestos-like gloss, according to the intensity of the process by which it was formed, according to its duration, and the process of its ossification. The osteophyte presents the splintery-leaved appearance, when it covers the bone in the form of conical excrescences or lamellæ several lines in length, which, beneath a fine, porous, compact external covering, contain a large-celled osseous structure, or even one simple cavity. The watery osteophyte forms

wart-like excrescences with a broad narrow base, consisting of a chalky, white and very brittle substance. (Generally appertaining to the hip-joint, and its arthritic metamorphosis.) The osteophyte in the form of smooth, styloid, knotty prolongations, simple or ramified, pedunculated and round, is hard and of a thick texture. The osteophyte which appears in the form of a bony mass poured on the bone, and solidified as it were at the moment of its flowing, with even and smooth, or uneven and smooth surface, is also compact.

Diseases of the Bony Texture.

3. *Osteitis.*—Inflammation of bone may arise from external or internal causes; the latter are more particularly connected with the state of dyscrasis. This form of inflammation has its seat sometimes in the compact, sometimes in the spongy substance. A very moderate degree of inflammation throws out gelatinous exudation, which passes from a dark red through the yellow red, into a reddish-white, and ultimately into a white colour, which exudation, with respect to its consistence, passes from that of a gelatinous to that of a pliant, flexible cartilage, and of a reddish-white succulent bone; this covers the bone according to its quantity, as a scarcely perceptible white porous growth, or in the form of a very fine felt or velvet, and is connected internally with the bone as with the periosteum. More violent, repeated, or as it would appear, specific inflammations of bone, give out more copious exudations of the form above-mentioned, whereby the periosteum is increased sometimes into a fibrous callus or enormous thickness, as is occasionally observed on the shin-bone. Beneath the periosteum, the base of the ulceration, there is found a growth or secretion, consisting of curled or straight osseous plates placed on the bone, into the interstices of which the periosteum gives off prolongations. If the inflammation has its seat in the inner lamella of a tubulated bone, the medullary cavity is narrowed by the exudation given out. A higher degree of inflammation causes a fibrinous product, or a purulent product varying from a thin to a thick fluid, of a yellow or reddish colour, or a product of a greenish, brownish, discoloured and sanious appearance. In such inflammations, which run a very rapid course, the periosteum over the bone seems to be displaced, and frequently distended by pus into a fluctuating sack; in correspondence with the effusion, which is poured out into all parts of its structure, the bone presents an ash-coloured, dirty-yellowish, or reddish-green appearance; in case the effusion is sanious, the surface of the bone is rough and corroded.

4. *Caries.*—The sanious bone examined in the recent state presents various appearances, according to the progress which the disease has made. In superficial caries the compact bone is rough and corroded under a covering of sanies; its medullary canals are unequally dilated; the tissues contained in them are partly reduced to a mere friable mass, or flabby warty excrescences, which readily bleed, are developed from them, which shoot outwards in considerable quantity over the rough surface of the bone. The bone always appears porous or spongy, according to the contents of the medullary canals, in the first case discoloured, in the second

case rough in various ways. In case of caries of the spongy texture, the bone, when the formation of granulation is luxuriant, assumes a dark, livid redness, it becomes soft, and resembles a piece of flesh permeated by a fine, delicate, bony texture. According to Delpech, Berard, Pouget, and Sanson, and according to Mouret, a peculiar fatty substance is produced, in which case, however, according to the last observer, the gelatine has not disappeared from the bone. The carious bone in the macerated and dried state appears rough, as if corroded, and acquires a spongy, porous, worm-eaten appearance, by reason of the unequally-dilated medullary canals, which in several places have formed into holes, and which perforate it; the cells of its spongy substance are dilated, their parietes are attenuated and broken down like the grating of trellis-work.

5. *Osteoporosis.*—In consequence of an excessive development of the marrow or of the tissues which fill the medullary canals and cells of the bone, the bone assumes an increase of volume, its tissue being rarefied. The parietes of the dilated interstices of the bone are so very much attenuated, that gaps or chasms take place at length in the interior and in the external covering, whereby the cavities in the bone enter into communication with each other; the enlarged bone, the higher the degree of the disease is, becomes so much softer, porous and spongy, that it yields to the pressure of the finger, and is easily cut with a knife; its spaces become filled with a dark red medulla collected in great quantity, which is traversed by dilated vessels.

In softening of the bone, which occurs under the two forms of rickets and osteomalacia, we have present an osteoporosis in a different degree; at the same time, however, we have, as an essential anomaly, a reduction of the bone to its cartilaginous element with or without a disturbance in the chemical composition of the same; the bones are accordingly not brittle, but easily bent; they are subject to curvatures, and they are liable not to what may strictly be called fractures, but with more propriety cracks.

6. In case of rickets the bones appear swollen, and the angular shaft of the long bones becomes round, cylindrical; the articulations of the same, and the broad bones, as the pelvic bones, become unusually thick. With respect to the texture of rickety bones, they are affected in two ways, 1st, with osteoporosis accompanied with increase of volume, in which case a pale yellow, reddish jelly is effused into the dilated canals and cells; the vascular bone appears dark-coloured, and somewhat red; this state sometimes attains such a degree, that the cells of the spongy bones, and those in the interior of the medullary tubes, run together into a larger cavity in consequence of the excessive distension of their parietes, and entirely disappear. 2. The bone sometimes becomes so poor in the amount of the fixed salts, that it becomes entirely reduced to its cartilaginous element, and comes to resemble a bone treated with acids; the bony corpuscles are empty; the lamellar structure is obliterated in some places, and in other places the lamellæ have, as it were, receded from each other, and the bony corpuscles between them are, as it were, enveloped by them.

7. In osteo-malacia the bones diminish in size, and the change of structure consists in osteoporosis with atrophy, a soaking of the bone in fat, and in a reduction of the bone to its cartilaginous element. In this cartilage the bony corpuscles appear empty, the lamellar structure has disappeared; at the same time the cartilage undergoes a peculiar change in its chemical composition, as the extract obtained by boiling is distinct both from chondrin and from gelatine of bone.

8. In *consecutive sclerosis*, the anomaly of the chemical composition appears to consist in a supersaturation of the cartilaginous element of the sclerotic bone with mineral principles, in the presence of unusual salts, and in an alteration in the habitude of the jelatine of the bone itself. Those cases of sclerosis are particularly marked, as Rokitansky observes, which proceed from osteoporosis occurring in advanced life, and which may oftentimes be observed in the skull. The bones present externally, especially on the cut surface, a chalky appearance, with a dull white colour, and on the broken surface a coarse granular appearance; the bone exhibits irregularly angular medullary canals, the lamellar structure being deficient or perceptible only here and there, the bone-corpuscles lying irregularly one amongst the other. Sclerosis of the head of the thigh-bone in the disease malum coxæ senile exhibits a similar appearance; the mass of bone takes on a gypsum-like polish. A closer examination detects a thick lamellated structure, the lamellæ very numerous, few bone-corpuscles, which, however, in some places, lie together in thick heaps. The stalactite chalky osteophytes, found on the head of the thigh-bone, exhibit a similar structure, and very many thick, black bone corpuscles, mostly of a rounded form. The sclerosis, connected with rachitism, is characterized by hardness, by a vitreous brittleness of the bone, by a splintery fracture, the medullary canals are small, surrounded by a large, comprehensive, lamellated system, and only a few bone-corpuscles have been observed surrounding the canal; they are small, and, what is still more remarkable, they are in a great measure transparent.

Morbid Structures.

1. *Formation of Cysts.*—The simple cyst, with serous or synovial contents, chiefly in the bones of the face; *the compound Cystoids; the Acephalocysts;* these, like the preceding, are rare phenomena; Acephalocysts have been seen in the humerus, tibia, os ilium, and in the diploë of the thigh-bone. Rokitansky observes of the specimen preserved in the Vienna collection, that the left os ilium was changed into a serous sack as large as a man's fist, which was filled with numerous pieces of bone of different sizes adhering to the inner wall of the sack, and with echinococus cysts, some being the size of a millet-seed, some that of a nut.

2. *Fibrous Tumours.*—These sometimes attain a very considerable size, distend the bone to a cyst, or crush it in such a manner that dismembered fragments of it are found in its substance, separated the one from the other; the structure of the fibroid is sometimes thick, sometimes loose, white and elastic.

3. *Enchondroma.*—This is more frequently observed in the bones than in other structures, more especially in the bones of the fingers, toes, ribs, and sternum. It continues like the permanent cartilages for a long time, even during life, in its original state, sometimes it becomes ossified, sometimes it is attacked with inflammation from the surrounding soft parts, and suppurates.

4. *Osteoid.*—This is characterized as a bone developing itself from an ossifying cartilaginous element of new structure in the old bone, in the form of a round tumour, which is distinguished from the normal bony structure by a different elementary texture. Lastly, among the morbid formations have been classed the very rare phenomenon of choleostoma, tubercle, sarcoma, and carcinoma.

The inquiries made by several chemists into the nature of diseased bones should now be set down in the same order in which the physical changes of structure of these same bones have been described by Rokitansky.

1. *Exostosis.*—According to Valentine and Lassaigne the quantity of phosphate of lime contained in an exostosis is diminished, whilst the quantity of carbonate is considerably increased; the amount of organic matter is greater than in the bones to which the exostosis is attached. Lassaigne found the following proportions in the bone and in the exostosis.

	In the bone.	In the exostosis.
Organic Substance	41,6	46
Phosphate of Lime	41,6	30
Carbonate of Lime	8,2	14
Soluble Salts	8,4	10

2. On the subject of carious bones Valentine has instituted some experiments, of which the following are the results:

	1.	2.	3.	4.
Organic Constituents	55,880	54,390	45,620	54,830
Basic phosphate of Lime	34,383	39,393	45,451	33,914
Carbonate of Lime	6,636	4,620	5,683	7,602
Phosphate of Magnesia	1,182	0,520	1,180	0,389
Chloride of Sodium	1,919	0,424	1,620	3,157
Carbonate of Soda		0,647	0,446	0,118

The first analysis is that of the tibia of a man, 38 years of age; the second is that of the carious external condyle of the femur of a young girl; the third, that of the carious head of the tibia of the same girl; the fourth, that of the carious dorsal vertebra of a man 20 years of age. In all these analyses the organic constituents appear increased. The phosphate of lime is most diminished, the carbonate of lime inconsiderably so. In an osteophyte-like crust deposited around a carious tibia, Valentine found the phosphate of lime still more diminished, and a considerable quantity of chloride of sodium.

We omit any notice of an analysis of *osteoporosis* of the skull, as presenting nothing very remarkable.

4. *Rachitis.*—The bones in rachitis have been frequently examined. They are chiefly characterized by the small quantity of fixed salts they contain. Davy found the following propoitions of earthy salts in rickety bones:—

In the femur	37,8
In the spinous processes	40,7
In the ribs	40,8
In the tibia	26,0
In the parietal bone	27,1

Lehmann (Physiologisch. Chemie. Bd. 1, p. 111,) found in the tibia of a rickety child 33,9 of phosphate of lime.

Marchand (Journal f. Pract. Chemie. October, 1842,) examined several bones of a child who died of rickets; the result of these inquiries was, that the spinal vertebra lost most, the sternum least of the fixed salts.

Marchand found the cartilage of the rickety bone so essentially changed, that on being boiled it yielded a fluid containing neither gluten nor chondrine.

Marchand, on examining the urine of the child, whose bones were subjected to experiment by him, as we have just now seen, found a short time before death five or six times more earthy phosphates than are found in healthy urine. Berzelius showed how extremely easily the phosphate of lime is dissolved by lactic acid. As in scrofula and in scrofulous bones an excessive formation of acid is generated in the primæ viæ, it is not improbable that a greater quantity of acid reaches the circulation, and the proximate cause of the solution of the bone-earth emanates from the bones. So long as the alkaline salts of the blood are sufficient to satiate the excess of acid, so long are the bones preserved in their healthy state; but if this is not the case, their bone-earth becomes dissolved. Marchand very justly animadverts on the absurd treatment of rickety children with madder. The natural mode of treatment should strive to meet the cause of the excessive generation of acid by suitable diet and antacids; and in the next place all those alimentary substances which are capable of forming lactic acid, as sugar, starch, and gum, must be avoided.

In *osteomalacia*, as in rickets, the earthy salts in the bones are very much diminished.

Ragsky has made several experiments with *sclerotic* bones. In simple sclerosis of the skull in a madman the sp. grav. of the bone was 1,911. On boiling, the cartilage was converted slowly into jelly, the solution was whitish, turbid, and gelatinous; alcohol produced great turbidness in it, and tincture of galls a considerable precipitate.

We now shall pass on to the consideration of *Arthritic Bones.* It is well known that the deposits which form in consequence of arthritic disease on the bones, and chiefly on the ends of the joints, are combinations of uric acid, and also that the diseased bones themselves contain a less quantity of fixed salts than healthy bones. Marchand examined the thigh-bone and the fore-arm of an anthritic individual: the analysis was as follows:—

	Thigh-bones.	Bones of the Fore-arm.
Animal substance	46,32	45,96
Phosphate of lime	42,12	43,18
Carbonate of lime	8,24	8,50
Phosphate of magnesia	1,01	0,99
Fluoride of calcium, Soda, chloride of sodium, Loss	2,31	1,37
	100,00	100,00

The thigh-bone was covered with deposits at the end of the joint, the bones of the fore-arm, on the contrary, were in the normal state; still both bones evince a corresponding deviation from the normal composition, so that the morbid process is expressed not merely in the bones on which deposits exist, but over the entire bones of the body; the similar diminution of the fixed salts, and chiefly of the earthy phosphates, is obvious here. Exostoses of arthritic bones are occasioned not by a growing out of the bony substance, but by the expulsion of matters foreign to the normal composition of the bone. The concretions found on the arthritic thigh-bones above noticed, were examined by Marchand, who found therein:—

Urate of soda	34,20
Urate of lime	2,12
Carbonate of ammonia	7,86
Chloride of sodium	14,12
Water	6,80
Animal substance	32,53
Loss	2,37
	100,00

Ragsky examined a gypsum-like concretion on the head of the thigh-bone of a person labouring under malum coxæ senile; its sp. grav. was 0,845; on boiling, it yielded a brownish-yellow transparent fluid, which evinced but little disposition to gelatinise, but from which a large precipitate was thrown down by tincture of galls and chloride of platinum; it contained—

Organic constituents	33,90
Basic phosphate of lime, with phosphate of magnesia	59,10
Carbonate of lime	6,57
Salts soluble in water	0,43

No uric acid could be found in it.

An interesting case of the disease of bone, to which Joh. Muller has given the name of *Osteoid*, is here communicated by the author. It occurred in a boy 14 years of age, of a very leucophlegmatic appearance; he was labouring at the time of his admission under dropsy of various parts of the body; there was formed around the knee-joint a knobby hard swelling. On close examination it was found that the tibia, patella, &c., were entirely free of disease, and that the tumor was seated on the os-

femoris, on which it extended almost from the condyles to the head of the joint. The limb was amputated, and the structure of the tumor was minutely examined; on being sawn through, it was found to consist of two strata. The first, which had its seat immediately on the diseased bone itself, presented a hard mass, similar to compact bony substance, only in some parts it was permeated by a somewhat softer mass; this mass immediately beneath the periosteum raised itself in the form of straight bony fibres, and passed gradually into the substance of the bone; the second stratum or layer, composing this tumor, and forming its external part, was softer, and of a pulpy consistence, still, however, resisting pressure; it appeared to be entirely similar in structure to the hard layer beneath it, and to differ from it only in containing a smaller quantity of bone earth. On submitting the several parts of this tumour to chemical analysis, after first removing the fat, and performing the other preliminary steps, the results obtained mainly consisted in this; the greatest difference in the composition of this morbid formation consisted in the amount of the carbonate of lime it contained, which appears to be always the first constituent diminished in diseases of the bones; the salts soluble in water are increased, and indeed so much the more, the less the quantity is of the salts of lime in the morbid product. A more detailed account of the chemical changes observed in this case would appear uninteresting to the majority of our readers.

A PRACTICAL TREATISE ON ORGANIC DISEASES OF THE UTERUS. By *John C. W. Lever*, M. D. &c. Octavo, pp. 228. London, 1843. Longman & Co.

THE study of the Diseases of the Uterus, and of everything appertaining to the Obstetrical Art, now attracts very much more attention than it did twenty or thirty years ago. Within less than the short period of a *lustrum*, we have brought under the notice of our readers important works from the pens of Drs. *Ramsbotham*, *Lee*, *Churchill*, *Ashwell*, *Montgomery*, and *Davis*—not to mention some from our brethren across the Channel; and still there seems to be a demand for more. The author of the present Treatise—which is the prize essay of the London Medical Society for 1843—is already well known as the contributor of some able articles to the Guy's Hospital Reports, which have been reviewed in some recent numbers of this Journal. His experience in obstetrical cases is necessarily very extensive, as he is the assistant accoucheur, and one of the lecturers on midwifery, at that immense institution.

We shall not linger over the introductory pages, as they contain nothing that is novel or that deserves particular notice. It is to be borne in mind that the work is professedly devoted to the *Organic* Diseases of the Uterus; the *Functional* not coming within the scope of its inquiries. The former Dr. *Lever* arranges under three heads or divisions—I. Inflammation and

its Consequences. II. Diseases of a Specific Nature; and—III. Malignant Diseases.

A few general remarks may be usefully premised, before we proceed to the examination of particulars.

There are certain symptoms which may be considered as common to all the Organic Diseases of the Uterus—whether these be simple, specific, or malignant in their nature. For example, the mucous discharge from the vagina is almost always more or less increased in quantity, and altered in its characters. There is some irregularity or another in the menstrual secretion; either amenorrhœa, dysmenorrhœa, or a tendency to menorrhagia, and then the intervals between each return are usually shorter than in health. Sexual connexion, or even fatiguing exercise, especially if this be on foot, brings on pain and uneasiness in the pelvis or vagina, and often a slight discharge of blood. There is a sensation of dragging at the loins and pit of the stomach, and of an uncomfortable weight about the perineum and groins. Very generally the excretion of the urine is accompanied with some trouble and inconvenience; perhaps there is a certain degree of incontinence or strangury, the desire for micturition returning very frequently, and being attended with pain and uneasiness. The rectum too is speedily implicated; the bowels are irregular in their action; and often there is a disposition to hæmorrhoids. Along with these symptoms, denoting that there is something amiss in the pelvic viscera, there is almost always a sympathetic affection of the mammæ, when the uterus is the suffering organ. Indeed, the patient sometimes complains more of the former than of the latter part, and consults the medical man for what she supposes to be some affection in her breasts. Attention to the various circumstances now mentioned will suffice to guard *him* from committing this mistake. As the uterine disease makes progress, its characteristic symptoms are too painfully conspicuous ever to be overlooked; but then let it be remembered, that it is in the first stage only that the resources of the healing art are generally of any avail. It is therefore of paramount importance that every medical practitioner be duly alive to the signs, which usually indicate incipient organic diseases of the uterus.

We now proceed to take a rapid survey of some of the more frequent and important of these diseases; and first of—

Acute Inflammation of the Uterus, or Metritis.

This disease, as might be imagined, (is of comparatively rare occurrence in the unimpregnated state. Its most frequent cause, under such circumstances, (according to the experience of Dr. *Lever*,) is a sudden suppression of the catamenia, and the use of stimulating injections for the cure of Leucorrhea. It may be induced also by a blow, or contusion, or by any other injury of the hypogastrium.

The symptoms may be readily predicated—sharp darting pains in the pelvis, frequent and uneasy micturition, sense of weight and bearing down in the vagina, increased by walking or any exercise. The mammæ often sympathise and become swollen and tender; the stomach is usually irritable; and there is always more or less feverish disturbance of the system.

The disease is apt to be mistaken for some malady of the bladder or o

the rectum. Hence the propriety of a manual examination either by the vagina or rectum, or by both, when there is any room for doubt. The uterus will probably be found to be larger and heavier than in health, and often exquisitely painful on pressure. *Metritis*, when neglected or occurring in an unhealthy constitution, may be followed by *ramolissement* of the substance of the uterus, by suppuration in its parietes, or even—although this termination is very rare—by gangrene.

We need not say much respecting the treatment, as the proper curative means are sufficiently obvious. Bleeding, general and local, calomel and opium, saline purgatives and diuretics, rest, &c. are the main remedies to be relied on. There is only one precept of Dr. *Lever's*, on which we shall offer a remark or two. He says: "If the disease has arisen from suppressed menstruation, the re-appearance of the secretion should be strenuously attended to." This observation may be interpreted as a recommendation of the use of emmenagogue medicines. Possibly Dr. L. intended that it should be. If so, the propriety of the advice is, in our judgment, very questionable. The less that this class of remedies is used in all cases where the uterus is, or has recently been, suffering, the better. When once the organ is restored to a healthy condition, and the general constitution has recovered its tone, Nature will in general re-establish the menstrual secretion, without the assistance of any direct stimulants either to the organ itself or to the adjacent parts. We are the more induced to insist upon this point, as it is still a very prevailing opinion that, whenever the catamenia are absent, we should, as a matter of course, endeavour to provoke their return by the use of emmenagogues. The absence of the accustomed discharge is regarded as the *cause* of the constitutional disorder; whereas, in the majority of cases, is it not rather the *effect?* Improve the general health, by rectifying the alvine and urinary secretions, by regulating the diet, the exercise, and the clothing, and by keeping the mind actively and cheerfully occupied, and in ninety cases out of a hundred, the menstrual secretion will return of itself.

Dr. *Lever* has enumerated Chlorosis among the functional diseases of the uterus. We doubt much if he is right in doing so.

Chlorosis, according to our view of its pathology, is *accompanied*, but not *induced* by the absence of the catamenia; and hence it seems to us that we may, with perfect safety, keep the circumstance of the amenorrhœa almost out of consideration, in conducting its treatment. The disease is essentially a disease of the circulating fluids, and may, it is well known, exist in the male sex as well, though not so frequently, as in the female. There is a deficiency of the red globules of the blood, and an excess of its serum. If we are to trust the recent researches of M. *Andral*—and his authority, we need not say, is not lightly to be disputed—the proportion of the red globules in chlorotic blood is less by one-half, or even two-thirds, than the normal quantity. Here is the "fons et origo mali:" we have a poor watery state of the circulating fluid, which Nature finds insufficient for the purposes of healthy nutrition and secretion—at that very period of life, when these functions ought to be the most energetic. Although we could by the use of any means provoke the catamenial secretion under such circumstances, would it, think you, have any beneficial effect upon the general health?—we judge not. Menstruation, be it re-

membered, in one sex has its analogous function (although this is not periodic) in the other; and certainly no one would ever think of administering any aphrodisiac medicines to a chlorotic boy, for the cure of his green-sickness. Let but the system have once a due supply of healthy blood permeating all its parts, and stimulating all its organs, and then will the white-waxen look give way to a rosy freshness, the faded and capricious appetite to a natural relish for wholesome food, the peevish listlessness and inaction to sprightly animation and vigour, and, with these changes, the absence of the menstrual secretion will be replaced by a due and normal regularity. Such will be the effects of a judicious hygienic treatment by steel and other tonics, by exercise in the open air, and a generous diet—not forgetting *Falstaff's* sovereign remedy for male green-sickness. "The second property," says the old rogue, "of your excellent Sherries is the warming of the blood; which, before, cold and settled, left the liver white and pale, which is the badge of pusillanimity and cowardice; but the Sherries warms it, and makes its course from the inwards to the parts extreme; it illuminateth the face, which, as a beacon, gives warning to all the rest of this little kingdom, man, to arm; and then the vital commoners and inland petty spirits muster me all to their captain, the heart; who great, and puffed up with this retinue, doth any deed of courage."

Truly, a medical dissertation might be written upon the fat knight's prescription.

But it is high time to return *á nos moutons*, although the digression, we trust, may not be altogether unprofitable.

We have said that metritis may terminate fatally in *ramollissement*, and also in suppuration, of the substance of the uterus. Both these consequences were present in the following very instructive case, the report of which does not admit of abridgment."

"I was called to Jane P——, æt. 21, a dressmaker; she complained of severe pain at the lower part of the abdomen. She had been to Greenwich Fair, and after heating herself by dancing, walked home to London. The night was cold and wet; she was lightly clad, and was menstruating at the time. On the following morning she had a rigor, which lasted for half an hour; this was followed by great heat of skin, delirium, and pain in the lower part of the belly, which continued up to the time I was called. The pulse was 120 sharp; the catamenia had disappeared; she complained of pain in micturition, and at times she was delirious. She was bled to approaching deliquium; leeches followed by cataplasms were applied to the belly; calomel, antimony, and opium were given every four hours; but all were of no avail, as she became rapidly worse, and died in twenty-four hours from the period of her attack.

"Upon a post-mortem examination, the peritoneum was found to be free from inflammation with the exception of that covering the uterus, which communicated a dry sensation to the finger. The uterus was of a dark reddish-green colour, soft and lacerable, and in one spot there was a depôt of a purulent-looking fluid about the size of a kidney-bean. The ovaries were of a dark red colour, and the ovarian plexus of veins were highly congested." * 27.

---

* The late Mr. *Howship* had in his collection a preparation of an uterus, in the parietes of which there was an abscess, which contained an ounce of pus. Occasionally, the abscess has broke into the cavity of the uterus, and been discharged through the vagina.

Dr. *Lever* very properly cautions his readers of the danger of an insidious form of metritis rapidly coming on in cases of imperforate hymen, when an incision has been made through the septum, and the confined catamenia have been quickly discharged: the admission of the external air into the long-occluded cavity seems to have the same injurious effects under such circumstances, as we often observe to take place in cases of large purulent collections, when incautiously opened.

So much for Inflammation of the Uterus in the unimpregnated state. We shall now mention a few memoranda respecting the disease, when it occurs during pregnancy, or—as is much more frequently the case—after delivery. As might be expected, any external violence is greatly more apt to injure the gravid than the empty womb. But, besides this cause, we should remember that all attempts to induce premature labour, either by mechanical means or by the administration of the *secale*, or other medicines, are apt, in certain constitutions, to induce inflammation of this organ. It is highly necessary, therefore, that medical men be constantly on the watch, under the circumstances now alluded to, against the insidious and often unperceived invasion of the disease.

Dr. *Lever* is of opinion that the very firm adhesion of the placenta to the womb—sometimes so great as to resist all justifiable attempts to detach it—is occasionally owing to lymph having become effused between the opposing surfaces, in consequence of a previous attack of metritis. A still more serious result of the disease in question is softening of the substance of the uterus; for then there is no little danger of its becoming ruptured, if the labour be hard and difficult. Our author mentions a curious case, where an abscess formed on the right side of the os uteri in a lady who was six months pregnant: after much suffering, the abscess broke and gradually healed up. Labour came on next month, and she was delivered of a dead child. Ultimately she quite recovered.

Subacute Metritis may be primary, or it may be the *sequela* of a more active attack. It is not unfrequently owing to the injudicious administration of the *secale cornutum*. "I had under my care," says Dr. *Lever*, "five females attended by the same individual, to all of whom he had given the secale, and who were affected by the same symptoms: central pains, increased upon assuming the erect posture, by defæcation, and micturition; tenderness above the pubes; thick white discharge, at times streaked with blood. On vaginal examination, the uterus was found to be enlarged, its os tumid and tender, and great pain was excited by pressing with the finger upon the cervix."

In the treatment of the subacute form of the disease, it will often be found of great utility to draw blood itself from the affected organ, either by means of leeches applied to the cervix of the uterus, or by scarifying it, as recommended by the late Mr. *Fenner*.* Cupping over the loins is also an excellent remedy, and will often supersede the methods now mentioned.

"The patient should be made to rest a great deal, and, if married,

* Our readers will find a description of the instrument, and means of using it, in the 64th number of the Medico-Chirurgical Review.

to 'take the widow's sombre cap' for some time, as Dr. L. delicately expresses it. The use of the hip-bath, and of anodyne injections—as the Decoct. papaver. vel Conii, to which the liquor Plumbi at first, and subsequently alum, may be added—is not to be neglected. A mild diet, as a matter of course. Our author has not had occasion, we presume, to remark the *Metritic* effects of coffee, which M. *Lisfranc* has dwelt so much upon—else no doubt he would have prohibited it. But the Frenchman's opinion is not likely to have much weight either on this, or on any other subject.

In the more chronic cases, and especially when the uterus has become enlarged and hypertrophied, the internal use of the milder preparations of mercury, also of iodine,* conium, &c., will be found necessary. The muriate of ammonia, a medicine in high favour among the German physicians, deserves to be more generally tried by ourselves than it has hitherto been. An issue in one of the groins is a very potent, although a very unwelcome, remedy. Warm salt-water bathing is an admirable restorative, when all inflammation has been subdued.

It may be remarked that women, who have suffered from hysteritis, do not often become pregnant afterwards. Whether this be owing to the closure of the uterine openings of the Fallopian tubes, is uncertain; it is certainly probable.

We close our remarks on this branch of our subject with the following sensible remarks on the importance of forming a correct diagnosis, in cases of induration of the os and cervix of the uterus.

"Induration, the result of chronic inflammation, may be known by its regular feel, and by the history of the case. In most instances there has been the creamy discharge, or, to use Sir C. M. Clark's words, 'a mixture of starch and water made without heat.' Induration, the commencement of malignant disease, is in nodules, the malignant depositions being generally secreted in central patches. It must not, however, be forgotten that malignant disease frequently establishes itself in the mouth or neck of a womb that has become indurated by long-continued chronic inflammation: and although we cannot say that the one is the cause of the other, yet it is very certain that, when induration is allowed to go on unheeded, or even when it is stationary in many cases (as in the mamma,) malignant disease will be developed at that period of life when the catamenia take their departure." 64.

Ulceration of the Os and Cervix Uteri.

This is either of a simple, of a specific, or of a malignant character. The *first* of these forms is generally preceded by symptoms of inflammation—shiverings and febrile re-action, a dull pain in the pelvis and a sense of dragging in the loins, and of weight about the fundament. All these symptoms are usually aggravated at each menstrual period. Often there is a most distressing pruriginous itching of the external pudenda, and very generally more or less leucorrhœal discharge, which is sometimes tinged with blood, especially after sexual connexion, or a manual examination. The size of the ulcerated spots may vary from that of a pin's head to a

* Dr. *Lever* is partial to the compound of these two potent remedies—the protiodide of mercury.

shilling, or thereabouts. To judge aright, it is necessary to examine them by means of a speculum: Dr. *Lever* uses one of glass, blown for the purpose, stout, and larger at one end than the other. In some cases, the ulcer is quite superficial and looks like a mere abration of the mucous lining; in others, it resembles a cut surface; while in others still, its edges are irregular and jagged, and the surface looks angry and irritable. The pressure of the finger will often cause it to bleed.

With respect to the *treatment* of simple ulceration of the os and cervix uteri, it will generally be found very useful to abstract a little blood locally, either by means of cupping over the sacrum, or leeches to the groins and vulva, or to the uterus itself. The tepid hip bath every, or every second night, and emollient anodyne injections, are useful adjuvants. Saline aperients and diaphoretics during the day, and mild sedatives at bed time, are not to be neglected. When all the inflammatory symptoms are subdued, the ulcerated spots should then be touched with the nitrate of silver, applied in substance by means of the speculum, every third or fourth day; and the general health strengthened by the use of tonics, sarsaparilla, a mild yet generous diet, and a residence, if possible, at the sea-side for some time. Sexual intercourse should, as a matter of course, be avoided.

When a prolapsus of the uterus remains for some time unreturned, the os and cervix of the organ often become the seat of troublesome ulcerations. When these are indolent and irritable, an excellent application is a poultice made with crumbs of bread, and a lotion, composed of black wash and extract. Opii.

Venereal Ulcerations are, as might be expected, much more troublesome and difficult of management than those which we have been describing. They exhibit the common characters of genuine chancres; having hard, elevated and ragged edges, and their surface covered with a gray, sanious layer of discharge. It is unnecessary to say more on this subject; or to enlarge on the mode of treatment; as this must be conducted on exactly the same principles as when the disease is situated elsewhere. The *lotio nigra*, used warm, is an excellent application at first; and Plummer's pill, the hydriodate of potash, and sarsaparilla, are the best internal remedies.

Gonorrhœa in the female is often accompanied with the existence of superficial ulcerations and herpetic eruptions about the os tincæ, which is then usually affected with an erythematic inflammation; the mucous glands too around the os and cervix are generally swollen and enlarged. For the relief of these symptoms, the local detraction of blood by cupping or leeches, and the use of cooling medicines, are most proper at first. Afterwards an injection of the nitrate of silver—commencing with 3 grains to an ounce of water—will, if properly employed, generally serve to remove all the symptoms.

Enlargement of the Glands of the Os Uteri, giving rise to Prurigo Pudendi.

In some cases, our author remarks, after inflammation of the os and cervix uteri has ceased, patients complain of an intolerable pruritus in the

vagina and external parts—just as there is apt to be an itching of the glans penis in affections of the prostate gland and urinary bladder. The complaint is often most unmanageable, and resists all the usual means of allaying irritation. Nothing abnormal can be seen, or detected by examination with the finger; but, if the speculum be employed, we may perhaps discover upon the os uteri numerous small granules, not unlike millet-seeds, white and soft, and seemingly vesicular.

In treating this troublesome complaint, it may be necessary to have recourse to local bleeding by cupping or leeches in the first instance; but, if there be no inflammatory tenderness present, we should at once have recourse to injections containing the nitrate of silver, (gr. v.—x. to an ounce of water,) or the sulphate of iron, (ʒj. to the pint:) these may be used two or three times daily.

In scrofulous habits, tubercles, containing a cheesy matter, are sometimes developed in various parts of the uterus and its appendages. These may be of a globular shape, isolated and detached from each other; but the most common form of the disease consists in the deposit of tuberculous matter in the exterior or interior surface of the uterus simulating other organic diseases of this organ, and often causing great perplexity in the diagnosis. Dr. *Lever* relates a very interesting case, which we give considerably abridged.

A young lady, whose health previously had been excellent, was suddenly seized, when coming down stairs, only ten days after marriage, with a pain in the hypogastrium, accompanied with sickness. She missed her next monthly period, and the sickness and tenderness of the abdomen gradually increased. A week or so afterwards, there was a decided fulness in the hypogastric region, and on careful examination a tumor could be felt there. The symptoms became worse and worse. The case was regarded as one of tubercular peritonitis: the tumor in the region of the uterus might be a large tubercle, or a cluster of tubercles. On examination per vaginam, the uterus was found to be completely fixed and immovable. Four months and a half after the first seizure, the patient died from a rupture of the intestines. On dissection, the whole of the peritoneum was found to be studded with tubercles. Attached to the uterus was one of very large size; and, in addition, the entire substance of the organ was discovered to be infiltrated with a deposition of tuberculous matter.

Corroding Ulcer of the Uterus is a much more serious disease than any yet alluded to. The ulceration seems to have a good deal of the *lupus* character, corroding or eating away the parts affected, but not accompanied—as Sir *Charles Clarke* observes—with any hardness, thickening, or deposit of new morbid matter, either in the uterus itself or in the adjacent parts.

"When a uterus," says Dr. Lever, "affected with this disease is examined after death, it will be found to have a greater or less portion removed by ulceration, which extends itself in a circular manner, so as to completely destroy the cervix and part of the body, a small quantity of cellular tissue alone connecting it with the vagina. Sometimes it is found that the disease has attacked the anterior or posterior surface of the organ only, spreading from thence to the bladder or rectum. Sometimes the ulceration extends to the fundus uteri, and destroys the greater part." 146.

The disease seems to commence in the submucous glandular structure about the cervix; for it generally appears first in this part, and thence extends downwards and upwards. It occurs most frequently about "the change of life." The origin and progress of this destructive form of uterine ulceration are unfortunately most insidious; and often the disease has existed for a considerable time, and produced great mischief, before its presence has even been suspected. There may, indeed, have been occasional pain and uneasiness in the pelvis, a sensation of heat, leucorrhœa, &c. experienced for some time; but no particular notice may be taken of these symptoms: and the apprehensions of the patient are often first awakened by an unexpected occurrence of hæmorrhage. On now making an examination, we shall probably be surprised at the extent to which the mischief has already proceeded. Usually the patient does not complain of pain, even when the finger is passed over the ulceration; she merely expresses herself as feeling sore. The hæmorrhage, which may have first drawn attention to the disease, will probably continue to recur at intervals; and between these there is usually a discharge of offensive sanious matter; very rarely this is of a proper purulent character. We need scarcely remark, that, ere long, the constitutional health is very sensibly impaired; all the symptoms of feverish hectic decay supervening. The degree of local suffering varies very much in different instances; in some, it is very severe, while in others scarce any is experienced. Hæmorrhage or diarrhœa frequently accelerates the fatal issue; occasionally peritonitis supervenes, and rapidly exhausts the powers of life.

The essentially distinctive character between the Corroding ulcer of the uterus and Carcinomatous ulceration of this organ is, that in the former there is a mere destruction of the affected part, without any formation of new morbid matter in its place; whereas, in the latter, there is always an extensive deposition of an heterologous formation into the surrounding cellular tissue, as well as into the substance of the uterus itself—by which this organ is rendered more or less immovable within the pelvis, in consequence of its increased bulk and weight, as well as by the adhesions that have been formed all around. In the Corroding ulcer, on the other hand, the womb (or as much of it as may be left,) may be freely moved about; perhaps even to a greater extent than in health, on account of the removal of some portion of the pelvic contents by ulceration affording more space.

What shall we say of the treatment of this formidable complaint? Can we do more than merely mitigate the sufferings of the patient, when it is once fairly established?—and, alas! this is too frequently the case when the medical man is first consulted. We fear not. Dr. *Lever* is in the habit of applying the nitrate of silver, either in substance or in solution; but no encouragement is given by him of any permanent good being effected. As a matter of course, much relief will often be afforded by the frequent use of soothing anodyne injections; none is better than tepid milk and water, to which syrup of poppies or the liquor opii is added.

If ever any means of decidedly arresting or curing this formidable disease be discovered—and we see no good reason to despair of some success—it will, we predict, be by the internal administration of some remedy

that exercises a peculiar effect on the capillary vessels and their contents. The Oxymuriate of Potash has recently been tried with excellent—at least temporarily—effects in many cases of Lupous ulceration of the face; and why may it not produce similar results on the womb, when affected in a somewhat like manner? Then there is the Muriate of Ammonia, to which we formerly alluded; the Liquor Potassæ—a truly valuable medicine in many inveterate complaints of the internal viscera as well as of the skin—the preparations of Arsenic, Iron, &c. There is also one very common medicine, which is, we think, far too much overlooked in the present day, although it has certainly very soothing effects in a variety of painful diseases, independently of its salutary effects as a mild aperient—we mean Sulphur. As it seems to pervade every part of the living frame, it may reasonably be supposed to exercise a considerable effect upon the extreme vessels and nerves. Often have we occasion to observe its singularly quieting effects in numerous neuralgic and other maladies.

We proceed now to make a few observations on that most sad and sorrowful of diseases, *Carcinoma of the Uterus*. Under this general term, Dr. *Lever* includes those heterologous formations, whether of an Encephaloid, Scirrhoid, or Colloid form, which have been differently named by the various writers who have described their pathology. All these varieties of the disease seem to be constitutional—or originating in a cachexia of the general system—either from the very first of their appearance, or very shortly after they have been once developed. The affected tissues become gradually more or less disorganised, losing entirely their normal and original structure, and degenerating into the morbid growth, to which we give the name of Cancer. According to *Muller*, its germinal cells are formed from a real "seminium morbi," which develops itself between the tissues of the affected organ. As we remarked above, there is always a deposition, to a greater or less extent, of the morbid matter into the surrounding cellular tissue, so that the diseased parts become matted and agglutinated together, and thereby are much less movable than in a state of health. We shall not at present enter into any description of the anatomical characters of the various morbid formations that are comprehended under the term of Carcinoma.

Unfortunately our knowledge on this point has not, as yet, been of any avail in suggesting a useful remedy against this truly dreadful disease.

According to the experience of our author, it is of much more frequent occurrence than is generally imagined; the registers of the obstetric patients of Guy's Hospital showing that the proportion of cases of Carcinoma Uteri to those of other (organic, we presume) uterine diseases is not less than as 1 in 7, or 13·5 per cent. In a paper published in the Transactions of the Medico-Chirurgical Society for 1839, Dr. *Lever* has shown that a large proportion of carcinomatous patients will be found to have suffered from uterine derangements—most frequently dysmenorrhœa—in their previous life. His subsequent observations confirm the correctness of this remark.

The early symptoms of the disease are usually indistinct and unsatisfactory; it is only after a careful examination per vaginam has been made, that the existence of the real evil is ascertained. In the early stage, the os uteri is generally hard, irregular, perhaps fissured, and projecting lower

down than usual. On examination, the finger feels as if there were a number of grains of shot or gravel under the mucous membrane of the os and cervix: these are the enlarged and indurated muciparous glands. When pressure is made firmly upon these, the patient often experiences a dull pain and sense of sickness. If a speculum is used, the os tincæ will usually be seen to be of a deep crimson colour; but the projecting shot-like points have a blueish hue. As yet, the disease appears to be confined to the orifice and neck of the womb, and the organ is still movable as in health. Fortunately this stage will sometimes last for several years, if nothing occur to aggravate the morbid action.

The second stage, or that of Confirmed Scirrhus, is indicated by the augmented size of the granular or shot-like bodies, giving to the os tincæ an irregular and knobby feel; by a gradual descent lower and lower of the uterus; and by an increase of the pain and local uneasiness: the discharge, although greater in quantity than before, is not yet fætid or at all sanious. On examination with the finger, the neck and body of the womb are found tumefied and hard; the os tincæ is more open than it was before; its lips are rigid, and usually notched in two or three places, but without any breach of surface. The organ is now felt to be less freely movable than it was in the first stage; but it does not become fixed in the pelvis, till the commencement of the third.

"Just previous to ulceration taking place, if careful examination be made, we shall find that some part of the tumid and indurated viscus is softer than the rest; at this spot ulceration will occur, and considerable pain will be caused when the examining finger makes pressure." 178.

As might be expected, the general health of the patient now suffers more deeply than before; her sleep is disturbed, her appetite fails, and she gradually becomes weaker and weaker. Urticaria is a not unfrequent complication, and often causes great additional distress.

The *third* stage is characterised by the occurrence of ulceration in the diseased part. As in open cancer elsewhere, all the sufferings are now tenfold more severe. The pains are described as lancinating, or stabbing, or burning, or gnawing; or perhaps all these horrid feelings are, as it were, blended together: they shoot from the womb to the pubes, and backwards to the anus and down the thighs. Not unfrequently there is a great deal of neuralgic pain, along the course of the sciatic or crural nerve felt at the same time: cases have even been known where by far the most severe pain was situated in the foot, and but very little felt in the uterine region. One or both of the lower extremities often become œdematous. Usually the first indication of ulceration having commenced, is a sudden loss of blood: this is sometimes very considerable. When it ceases, the discharge is usually found to be fætid, and of a darker colour than it was before. From its acrimony, the orifices of the vagina and anus are apt to become fretted and excoriated. There is always more or less dysuria, at this period of the disease. The rectum also sympathises; and thus every action of the bowels and bladder becomes a cause of increased suffering and distress. In some cases the ulceration extends either to the bladder or rectum; and then a fistulous communication is formed between the vagina and one of these viscera.

"Examination 'per vaginam' enables us to detect a hard irregular immovable mass, filling the pelvis, and about its centre the os uteri, which is more open than natural, its edges being thickened and ulcerated, the ulceration may extend completely round the cervix, or the anterior or posterior half alone may be affected and extend ultimately to the bladder or rectum; the ulceration is generally tender upon pressure, and the examining finger when withdrawn is covered with fetid sanies, frequently tinged with blood." 182.

It is unncessary to pursue this melancholy picture; perhaps in the long catalogue of human ills, there is none more hard to bear, or more melancholy to witness, than cancer of the uterus. To talk of curing this disease, when ulceration has once commenced, is vain and foolish; nay, it is worse; it is wicked and cruel; for it is a wilful lie.

It is gratifying, however, to find that many of the best authorities of the day agree in holding out a reasonable prospect of success from judicious medical treatment, if the disease be attacked in its incipient stage. After the inflammatory and congestive symptoms have been relieved by local detraction of blood, the system should be slowly brought under the influence of Mercury, by the continued use of small doses of its milder preparations: the inunction of the blue ointment may be used at the same time. Afterwards, the use of Iodine, Arsenic, &c. in some bitter infusion, will tend to benefit the general health, while these medicines often serve to exercise a beneficial effect on the local disease. The establishment too of a constant discharge from some part in the neighbourhood of the disease, as by an issue over the sacrum or in one of the groins, has unquestionably been of great utility in some cases. We need scarcely say, that all fatiguing exercise, and sexual intercouse, must be strictly prohibited. Mild anodynes at bed-time are generally advisable.

It is wholly unnecessary to repeat even the mere names of the host of medicines that have been recommended, at different times, for the relief of this disease in its advanced stages. Suffice it to say that, according to the experience of Dr. *Lever*, Arsenic has unquestionably often no inconsiderable power in lessening severe pains, if not in controlling the morbid action. He reports also favourably of the effects of Iodine, at least before ulceration has taken place. As a matter of course, nothing can be done without having recourse to narcotics—administered internally, in the form of injection or of suppository, and used externally as an embrocation. These must be every now and then altered, to suit the varying condition of the patient.

We shall not now discuss the propriety of ever having recourse to a surgical operation for the removal of a Cancerous Uterus. Although excision is reported to have succeeded in a few cases, it has ever appeared to us to be all but unjustifiable. Better, we think, let the patient sink under the sufferings which Nature herself has appointed, than for the medical man to incur the almost inevitable risk of rapidly accelerating her death. Of nineteen patients alluded to by Dr. *Lever*, 16 died, we are told, *in consequence of the operation.* Surgeons are becoming every year more chary of extirpating even a cancerous mamma; for, alas! in the majority of cases, the disease re-appears either in the original locality, or elsewhere. How much greater is the danger, when the uterus is the affected organ! True, we not unfrequently read of cases in the French Journals, where excision of the os and part of the cervix uteri was performed, it is said,

with brilliant success; but we have every reason to believe that often there was no malignant disease present at all, and that the cases,—at least many of them,—might have done perfectly well, had no operation been performed.

Dr. *Lever* has a section devoted to the consideration of "Pregnancy, associated with Cancer of the Uterus." This truly melancholy complication is not so unfrequent as many may suppose. We need scarcely say that the disease of the womb is inevitably aggravated, if the pregnancy makes any considerable advance before delivery takes place; and that, if it does, the life of the child is usually lost in consequence of the extreme difficulty of it passing through the contracted and undilatable orifice. There is one remark of our author on the management of certain cases of this kind, which calls for some comment. He says:—

"In cases where there is so much structural change that the application of the forceps is impracticable, and where the child is indisputably alive, as proved by its movements and by auscultatory signs, it is of great importance to determine whether we are justified in opening the child's head, and destroying its life, or whether we should perform the Cæsarean section. This is a question which I think demands serious consideration. In many cases on record I am of opinion that the life of the child might have been spared, if such an operation had been had recourse to, whilst several of the mothers died during labour, or soon after delivery, and in others their miserable existence was prolonged but for a few weeks." 218.

We admit that the question proposed does demand *serious consideration*; but, in our opinion, there never ought to be a moment's hesitation as to the practice to be pursued. In no case ought the life of the mother to be rashly jeopardised, nay rather almost inevitably sacrificed, in the hope of preserving that of her child; surely there cannot be any reasonable grounds for expecting the recovery—even for a brief time—of a woman, affected with malignant disease of the uterus, after the performance of the Cæsarian operation. The fœtus may indeed be discovered to be alive; but what then?—let it be remembered that, independently of the comparative rarity of a child "ripped from its mother's womb" surviving for any length of time, the chances of its *viability* are much less in the instance now under consideration than in the other cases, where the operation is usually recommended or has been performed.

A healthy offspring can scarcely be expected from a diseased parent; and so experience has found. Not many of the children of cancerous mothers are ever fully developed, or survive long. In two out of the six cases, related by Dr. *Lever*, it would seem that the fœtus was small, and under the standard size; in a third, it was dead, (although the woman conceived subsequently and gave birth to a living seven-months' child,) and in a fourth, it must have been dead for some time before delivery, for the cuticle was peeling off in several parts.

Let not therefore any British practitioner ever, for one moment, entertain the idea of performing the Cæsarian operation under the circumstances supposed, if the child can be brought away, at all safely to the mother, by embryotomy. Whether it would not be better to induce premature labour at an early period of pregnancy, when the degree of the dilatation of the os uteri, required for the passage of the fœtus through the diseased orifice

of the womb, is much less considerable, is a question that we cannot enter upon at present. The history of one of Dr. *Lever's* cases (XL) might, we think, be adduced in favour of its propriety; although Dr. *Blundell*, who was consulted upon it, thought otherwise.

One or two Chapters of the present work still remain unreviewed—those on Polypi, and Fibrous Tumors of the Uterus; but we shall not touch upon them just now; as we think it better not to introduce any topic that may have the effect of withdrawing the attention of the reader from the important subject of Inflammatory and Ulcerative Disease of the Organ, in various conditions of the system.

In conclusion, it is only fair to Dr. *Lever* to say, that we have been much gratified, on the whole, with the perusal of this Essay;—sensible and judicious throughout, it is evidently the production of an experienced and discerning practitioner.

Clinical Remarks on certain Diseases of the Eye, and on Miscellaneous Subjects, Medical and Surgical, &c. By *John Charles Hall*, M.D. &c. London, John Churchill, 1843, pp. 228.

When we contrast the present state of ophthalmological knowledge with the comparative obscurity which existed in this interesting department of the science of medicine at so recent a period as the commencement of the present century, we must admit that a considerable advance has taken place both in theory and practice. The obscurity and mystery of empiricism have given place to the clearness and precision of genuine knowledge—this desirable change being effected by unprejudiced observation, patient industry, common sense, and a strict adherence to inductive reasoning. It must be admitted however, also, that much still remains to be done in order to perfect what has been so happily begun. We want a faithful description of the varieties and modifications of such diseases as are at present known, with the correspondent modifications found by experience to be most suitable in their treatment. Such information could only be furnished by the unprejudiced collection of facts for a series of years, and then cautiously reasoning on this solid basis. A strict clinical work on the diseases of the eye, composed in the manner and with the intentions we have described, would therefore be a valuable boon to the profession, notwithstanding that we already possess several books which treat at large of these pathological affections, and are most methodically and minutely subdivided.

Dr. Hall tells us, in the preface to his work, that "the remarks offered in each chapter are the result of experience at the bedside of the patient." With an assurance at starting so consolatory, we shall endeavour to ascertain how far the contents correspond with the book of Nature, which Dr. H., in several parts of his volume, states is "ever open; and amply will

it repay the most attentive and diligent research." The contents are somewhat miscellaneous, incomplete in themselves, and more or less unconnected, having been collected mainly from scattered papers published in the London Med. Gazette. The work is divided into two parts; the first of which contains some Introductory Remarks, "General Remarks on the Treatment of Inflammation," "Chemosis," "Remedies employed in the Treatment of Inflammation," "Strumous Inflammation of the Conjunctiva," "Morbid Conditions of the Conjunctiva and Sclerotic," "Irritable Ophthalmia," "Purulent Ophthalmia," "Injuries of the Conjunctiva," "Opacities of the Cornea," "Pterygium," "Malignant Diseases," "Cataract," "Strabismus," "Fistula Lachrymalis," "Iritis," "Myopia," "Presbyopia," and "The Selection of Spectacles." The second part contains—"Remarks on Fistula, Compound Fractures of the Cranium, Hernia, Treatment of Bronchocele, Cancer of the Breast, Suppression of Urine, Uterine Hæmorrhage, Gout and Rheumatism, Diet and the Disorders of Digestion."

The author's introductory remarks are, as far as they go, judicious. It is true that, "by careful observation, an accurate knowledge is obtained of the symptoms, nature, and terminations, as well as of the degrees, and various forms of morbid action, which arise in each particular structure. But the knowledge thus acquired is not limited to diseased conditions of the eye, it can be used most advantageously in assisting the diagnosis of diseases in other organs, where a like structure exists, but which are concealed from view; and, lastly, by seeing the effect of remedies used in the cure of various morbid conditions of the eye, much practical and highly important information, relative to the treatment of diseases in other parts of the body, may be obtained."

In his remarks on the Treatment of Inflammation, Dr. Hall directs attention to the necessity of removing the exciting cause if it be still present. He briefly mentions a case where an acute attack of iritis was induced by a blow from a stick in passing through a thorn fence. At the time of the patient's application he had been treated by purging and bleeding—in addition, bleeding, with calomel and opium were directed, which checked without curing the disease. After several days, on minute inspection, the smallest portion of thorn was found sticking in the cornea;—this was removed and the man recovered. This case, with several others fresh in our recollection, prove the necessity of careful attention to the history of the case, its peculiar features, and a careful examination of the eye in all doubtful instances.

"The same disease," says Dr. Hall, "in all cases does not require similar treatment." Our own experience would induce us to say that we must be guided in every case not only by the age, sex, occupations, and peculiarities of the patient, but by the characters, both general and local, which the disease may present. On no account should the diseases of the eye be differently treated from analogous affections in other parts of the body, merely because they are seated in the organ of vision, but influenced by the same considerations, and using as large a proportion of common sense, it is as necessary to remove complications, and to study its peculiar features. In chronic cases a mere change of treatment is often sufficient to produce a cure, where an opposite plan has been pursued for some time

unsuccessfully—such as the substitution of soothing measures, or, in suitable cases, of tonics or nutritious diet, for antiphlogistic treatment and mercury.

Some of the more Important Remedies in Ocular Inflammation.

Under this heading Dr. Hall discusses the advantages and propriety of bleeding, purgatives, mercury, nauseants, tonics, counter-irritation, local applications, stimulants and escharotics. We are told that a knowledge of the due application of bloodletting can only be acquired by careful observation and extensive practice. Blood should, if possible, be taken from the bend of the arm, since opening the external jugular vein, or the temporal artery, present disadvantages, without any corresponding benefit. A large opening is recommended to be made in the vein, and in all acute cases, one very large general bleeding in preference to several small ones. Repetitions are rarely required, but leeches may be applied around the eye, but not on the lids, as they are apt to occasion swelling and ecchymosis in that situation. Purgatives are often required to correct the deranged condition of the alimentary canal, or to reduce the plenitude of the system. We have found an active purge, which both clears out the alimentary contents and promotes the flow of the biliary and intestinal secretions, most highly valuable in acute conjunctival inflammation, whilst mild and continued purgation, with or without tonics, is beneficial in several chronic inflammations, especially connected with deranged and depressed health. Dr. Hall cautions against the abuse of these medicines, for however necessary they may be in certain cases, their employment in this country is by far too common, and the doses in which they are given absurdly large, "that the evils arising from the abuse of aperients are too often overlooked," and he feels certain "that many who have commenced their practice with the idea that large doses were required in almost every case, more or less alter their opinion as it becomes matured by time and experience."

Dr. Hall, in his comments on mercury, agrees with Dr. Holland in respect to calomel, "that its combination with purgatives in these cases both obscures and impairs its effects,"* and that therefore, as a general rule, it should be given alone. When a mercurial is to be continued for some time, Dr. H. also agrees with Dr. Holland in thinking that no medicine or combination of medicines has an equally beneficial effect as the bichloride. He has seen the advantages of a long course in chronic iritis, and also in several cases of paraplegia—the slow progress of the disease giving full scope for its effects. For ourselves, we prefer the blue-pill in combination with conium, which we have found more safe and certain, and at the same time milder in its operation.

Dr. Hall states that to Mr. Middlemore of Birmingham is due the credit of directing attention to the utility of sulphate of quinine in certain strumous inflammatory conditions of the eye, particularly of the iris and aqueous humour. Ophthalmic medicine is deeply indebted to Mr. Middlemore for many practical suggestions, and for unwearied and untiring observation. The benefit of tonic treatment in the majority of the strumous

* Medical Notes and Reflections, p. 242.

diseases of the eye is now fully allowed in Great Britain and Ireland, and we find Dr. Erdman, in Graefe and Walther's Journal, dwelling at some length on the excellent effects of quinine in some of the most obstinate cases of strumous ophthalmia.* Dr. Hall narrates the case of a child, in illustration, who was brought to him in 1842. She was remarkably fair and handsome, and had already suffered from "scrofulous inflammation of both eyes" twelve months. After quinine had been taken for a month or six weeks, attention being also paid to diet and exercise, so great a change was wrought in her personal appearance, that it was almost impossible to recognise the puny, cross, feeble, delicate, little creature that was first brought, in the robust, rosy-cheeked child then standing before him.

It has been our lot to find, in a somewhat extended experience in the treatment of ophthalmic disease, that tonics and good diet are occasionally needed in almost every form of inflammation which affects the eye. We have found passive cases in every ophthalmia from the most obvious and simple variety of conjunctivitis up to the most obscure type of retinitis—cases which have rapidly improved under nutritious aliment and tonics, but which have become aggravated and have resisted opposite measures for an indefinite period. Our rule, from such experience, is never to judge beforehand what measure we shall institute for any individual case, but to be guided entirely by its special indications, although when we speak generally of a disease, we may say that such and such treatment is required.

Of counter-irritations Dr. Hall remarks, that "too much care cannot be exercised in daily watching their effects when applied to the head and face." In our own practice, we never employ any form of counter-irritation which is likely to have any permanent mark in a situation exposed to observation—especially the face—or any mode occasioning much suppuration in patients whose constitutional powers are not able to bear the discharge.

Stimulants and escharotics "very often increase internal and deep-seated inflammatory affections of the eye when injudiciously employed, however useful under proper management," and, we would add, not unfrequently augment or produce superficial diseases, which they were intended to cure. Dr. Hocken† has drawn attention to the subject of granular conjunctiva, which he has shown to be produced in more cases than are suspected, solely by the unscientific, indiscriminate, and repeated use of the nitrate of silver, either in substance, or as a strong solution.

STRUMOUS INFLAMMATION OF THE CONJUNCTIVA.

Dr. Hall states, that "on exposure of the globe to view, the ocular conjunctiva is found with its vessels injected with red blood, as in a case of simple ophthalmia; the palpebral portion of the membrane has its vessels

* Vide the July Number of this Journal for 1842, p. 189.
† Prov. Med. and Surg. Journ. vol. 1. 1841-2, p. 390.

also more numerously distended with the red fluid. In those instances in which the palpebræ are found tumid and red, ulceration of the cornea will also be discovered." The fact is, we believe, that strumous conjunctivitis presents many varieties, since any of the ordinary forms of conjunctivitis may be modified by the strumous constitution, but that these do not strictly come within the meaning of the term "strumous conjunctivitis," which should be confined to those cases where intolerance of light and the formation of phlyctenulæ constitute the more prominent symptoms, being unattended by much redness, at all events during its early stages. Out of fifty patients under Dr. Hall's care with various affections of the eye, no less than thirty-six had scrofulous ophthalmia. "Many of these cases occurred either in young females with suppressed or irregular uterine action, or in children near the period when the generative powers are becoming developed." This does not accord with our own experience, having almost invariably met with the disease during primary or secondary teething, so that it is probable that Dr. Hall and ourselves are alluding to distinct affections.

Following in the well-beaten path, Dr. Hall attributes the intolerance of light, so marked in this disease, to "morbid sensibility of the retina." We are inclined, however, to believe, with Dr. Hocken, "that the true retina has nothing to do with its production."* This gentleman has proved to our satisfaction that the essential nature of the disease consists in a morbid sensibility of the terminal filaments of the ophthalmic division of the nervous trigeminus, propagated through the great sympathetic.†

A very important part of the subject relates to treatment. Dr. Hall recommends counter-irritation, by means of small blisters behind the ears or at the back of the neck, tonics, and mild applications to the eye, with especial attention to important functional disturbances. "Where the disease is accompanied by profuse perspiration," he remarks, "or diarrhœa, blisters must be employed with very great caution, the slightest counter-irritation frequently sets up an inflammatory action, which ends in gangrene and mortification." Attention is also directed to diet, air, exercise, and clothing.

Dr. Hall does not allude to a plan of treatment strongly recommended by Dr. Hocken in the paper to which we have previously referred. This latter gentleman states, that the application of the nitrate of silver to the *outside* of the lids is so successful in strumous (and some other forms of) conjunctivitis, that he has never known it fail in arresting the disease *immediately*, in recent cases, when combined with appropriate constitutional measures, or after two or three applications in the more chronic. The patient's eyelids being closed, and put slightly on the stretch, a clean piece of the stick of nitrate of silver (previously moistened) is to be passed very lightly and smoothly over the surface of the skin of the upper and lower eyelids, bringing the side and not the point of the stick in contact with the skin. The object of this application, says Dr. Hocken, is only to blacken and not produce any severer effects, and it will be found that,

* Lancet, vol. I. 1842-3, p. 258.

† Loc. cit.

as soon as the remedy has had time to produce its peculiar action, it will completely relieve the intolerance of light, the lachrymation, and, what is of more importance, the spasmodic strivings of the orbicular muscle, by which the patient is rescued from that constant irritation and pressure which maintains and aggravates the affection.

The further treatment of the attack, consists in administering quinine with a mercurial in moderate doses, once or twice, and following it up by an aperient dose of rhubarb, ginger, and sulphate of potash.

This plan of treatment has been tried and approved by many competent judges, amongst whom we may mention the names of Mr. De la Garde, (senior surgeon to the West of England Eye Infirmary,) and Dr. Lanyon.* Its recommendation also drew forth a paper from Dr. Furnivall, physician to the General Infirmary, Hertford, in praise of the tincture of iodine similarly applied. He remarks, that "having been for many years in the habit of prescribing for cases of conjunctivitis, (chiefly strumous, and therefore usually the most obstinate,) and having enjoyed many opportunities of watching these distressing cases amongst the numerous out patients of the Infirmary at this place, I would beg to recommend to Dr. Hocken a trial of painting the palpebræ of the affected eye or eyes with the alcoholic solution of iodine, commonly called Træ. Iod. For very fine-skinned children the strength may be lowered."† Dr. Furnivall was led to apply this remedy by reflecting on the continuity of surface between the skin and conjunctiva, "and truly," he remarks, "the effects have been beneficial in an extreme degree." The distressing lachrymation is immediately relieved, and he has had reason to think that in several cases he has stopped ulceration of the cornea. The remedy is easily applied; it dries on; gives no trouble, and requires some two or three applications every week, according to its effects.

Nothing worthy of extract is contained in the section on "morbid conditions of the conjunctiva and sclerotic." Two or three cases are given in illustration, one of which was of the gonorrhœal type. We have met with the disease more commonly in persons somewhat more advanced in life than would appear to be the case with Dr. Hall, and very often combined with more or less inflammation of the iris.

IRRITABLE OPTHALMIA OF FEMALES WHEN SUCKLING.

Dr. Hall remarks, with justice, that this form of ophthalmia is rather to be regarded as a distinct type of irritable conjunctivitis, than as a distinct and separate disease, just as strumous ophthalmia is only a peculiar form of several strumous diseases of the eye. We are indebted to Mr. Middlemore for calling the attention of the profession to this form of the disease, and although, from our own experience, we should say that it was not very uncommon, it has not been mentioned in the works of Lawrence, Mackenzie, or Tyrrell.

"The disease," says Dr. Hall, "attacks women when suckling, particularly

---

* Vide Lancet, Jan. 21st, 1843. † Lancet, vol. I. 1842-3, p. 405.

if they have continued to nurse their children too long, and more especially occurs after this plan has been adopted two or three times. It is a very common opinion, that suckling prevents impregnation; women among the lower classes, supposing that conception cannot again take place until the child is weaned, they therefore continue to nurse their infants for a considerable period, and this frequently induces an attack of amaurosis of this peculiar form of ophthalmia." 33.

The fact of its frequently preceding or accompanying an atonic form of amaurosis, gives a degree of importance to the disease, without which it would scarcely deserve a separate description. Professor Nasse* has also described a very dangerous form of corneitis, which commences with the irritable form of conjunctivitis. The conjunctival inflammation rapidly passes to the cornea, and is accompanied by darting pains in the eye and orbit. From the third to the eighth day an abscess forms between the layers of the cornea, when the inflammation diminishes, but the onyx generally makes its way into the anterior chamber. The principal part of the treatment consists in separating the child from its mother, and in the administration of tonics.

There can be no doubt that these pathological states, which come on from undue or excessive lactation, depend on the depressed and irritable state of constitution which is thus induced—the general symptoms in each being those of debility and hectic. Hence, Dr. Hall is perfectly correct in stating that "the first indication is the removal of the exciting cause." "At once," he says, "let an extinguisher be put upon the cause of the disease; from that moment insist on the weaning of the child." As soon as the exciting cause is removed we may generally conduct the disease to a successful termination, if seen sufficiently early. Dr. Hall states, that he is acquainted with a lady who is always attacked with irritable conjunctivitis when suckling her children; and which, when he last saw her, had continued for a considerable period, but on advising her to wean her baby, the eye was quickly restored to a healthy condition.

Mr. Middlemore met with a curious fact in three females, who had continued to suckle for an injudiciously long period during the year 1836. One eye only was affected in each case, and on inquiry he found that the subjects of the malady had suckled only with the breast of the side corresponding to the diseased eye.†

PURULENT OPHTHALMIA.

Dr. Hall is fully convinced that any inflammation of the conjunctiva, attended with a purulent discharge, although described as presenting different aspects, is nevertheless the same, although its degree of severity may differ. No doubt, the pathology is essentially similar in the common purulent, the gonorrhœal, and the infantile purulent ophthalmia, yet, in a

* Ammon's Monatschrift fur Medicin.

† Trans. Provin. Med. and Surg. Assoc. vol. V. p. 372.

practical point of view, there are differences sufficiently great to warrant their separation. Dr. Hall's section on the history of the disease is a mere condensation from the valuable work of Mr. Middlemore.

"Purulent ophthalmia," says Dr. Hall, "in the adult, for the most part in this country arises from the contact of purulent ascretion." This statement we believe to be incorrect, both in the common and gonorrhœal forms. It is obvious that isolated cases, which arise without any connexion with diseased persons, must originate from some other cause than contact, and where the disease prevails extensively, it is where many are crowded together in a confined space—the poison acting through the medium of a confined atmosphere on such predisposed individuals as are exposed for a sufficient length of time to its influence. Mueller has come to this conclusion from a very extensive experience. He has never seen it in the friends of patients who were allowed to visit the sick—such visits being limited to half an hour, and taking place in a separate apartment, whilst the nurses and medical attendants, &c. were among the sufferers.* There can be no doubt that both the common and specific forms may arise from the contact of matter, but these are rather the exceptions than the law. M. Carron du Villards states, that the inoculated disease affects one eye, and he has observed that, in left-handed individuals, it was the left eye which was affected, and vice versa. (Guide Pratique, vol. II. p. 542.) Dr. Hall mentions that he once had an attack of the disease himself, from the accidental squirting of gonorrhœal matter into his eye. "A patient," says he, "consulted me for a discharge from the urethra: I advised the use of an injection, and on throwing some warm water up the penis with a syringe, a portion went into my right eye. Considerable pain was felt, immediately followed by inflammation, and the next day by a slight purulent discharge." M. Decondé's valuable experiments on the prevention of purulent ophthalmia are not alluded to by Dr. Hall. M. Decondé's conclusions are—1st, that chlorine and chlorurets are certain disinfectants for gonorrhœal and ophthalmic contagions, and that they are to be preferred to all others;—2d, that, to preserve soldiers free from ophthalmic infection, it is not enough to use lotions, but that the atmosphere itself should have chlorine suspended in it;—3d, that medical attendants who finger affected eyes should dip them in chlorine to prevent the carrying of virulent matter from one eye to another, or from one person to another, and that the same recommendation must be given to those who handle parts affected with gonorrhœa.†

In the consideration of "Chemosis," Dr. Hall adopts the theory of Messrs. Travers, Middlemore, and Tyrrell, as regards the mechanical obstruction of the corneal circulation, and advises the performance of the radiating incisions recommended by the latter gentleman. Dr. Hall remarks, "on reading over what I have written on the division of the chemosed parts, I think I have hardly done sufficient justice to the claims of Mr. Middlemore, who certainly was the first to point out the advantages arising from free division of the strangulated parts." The theory is not

* Erfahrungssätze, p. 80-2.

† L'Examinateur Medicale, October 24th, 1841.

new on the part of Mr. Tyrrell, since we find the doctrine distinctly laid down in the Synopsis of Mr. Travers (but without any practical inference,) in the Jacksonian prize Essay for 1831, by Mr Middlemore; the London Medical Gazette for 1832-3, in Mr. M.'s Lectures, and in numerous parts of the first volume of his "Treatise," published in 1834. Speaking of the results of purulent ophthalmia, we find Mr. Middlemore at p. 124, vol. i, stating that, "when sloughing of the cornea takes place in the progress of purulent ophthalmia it is not generally from the occurrence of inflammation of that tunic, but from the interruption to its nutrition, owing to the compression caused by the chemosis. Severe and prolonged chemosis causes mortification in the case in question, as I apprehend, because it generally takes place where such chemosis exists in its severest form. Sloughing of the cornea is more frequently associated with chemosis than with any other affection of the organ of vision. And it may be mentioned, in additional evidence of the truth of this position, that in all such instances the mortification begins in its superficial layers." "Mr. Tyrrell," says Mr. Middlemore, in a note quoted by Dr. Hall, "can fairly lay claim to the radiated incisions, but whether they are in all instances safe and practicable, and whether they are better than the curved or semilunar ones, which stop short of the greatest diameter of the eye, are questions I cannot, as a *practical* man, answer in the affirmative." 57.

Malignant Affections.

Under the head of "Malignant Disease," Dr. Hall narrates the case of Wm. Bartrup, æt. 9, who was first brought to him when seven years old. "The eyelashes of the left eye were gone, and the lower lid partially everted, the globe of the eye was much increased in size, and the vitreous body turbid and of a dirty brown colour." The mother stated that, some months before, the pupil had a yellow appearance, which increased slowly at first, then quickly, when the eye began to be bloodshot. A mild mercurial plan of treatment was commenced, and steadily followed for more than six months, with great attention to diet. At the end of four months some slight improvement was evident, and after six, the diseased mass gradually began to subside. His general health, also, was "quite robust." The disease, however, made great progress in the course of a year, and mercury, which hitherto seemed to possess the power of arresting it, appeared now quite inert. The eye-ball increased daily in size, but the boy complained of no pain.

Dr. Hall eventually extirpated the globe "in the usual manner." "The boy in this case got quite well over the operation, and is now quite recovered. The other eye is much improved, and the mother told me, a few days ago, that he was 'in the best of health.'" 74.

The question is—was this a case of genuine "malignant disease?" for, if so, an example where extirpation proved so successful at such an advanced stage, would be most encouraging and valuable. To us, however, it appears to present no one indication or symptom of a decidedly malignant character, and we are sorry to say that, in our opinion, there is no

encouragement to perform the operation in cases of confirmed and genuine fungus hæmatodes, which we must still consider as hopeless.

"I shall only offer a few remarks on cataract," says Dr. Hall, "in this place, because I hope at no very distant period to devote a greater space than the limits of the present volume will permit to its consideration." The "remarks" which are here given do not contain anything but what was previously well-known. He narrates two cases of partial cataract which had been mistaken for amaurosis. "They point out the absolute necessity of dilating the eye (iris ?) with belladonna in all cases of suspected cataract, before a decided opinion is pronounced." 79.

We find the author lauding the iodine of potassium as an adjuvant in the treatment of acute iritis. It is, he states, a very valuable remedy, and next to mercury the best we can employ. "In every case I am called upon to attend," says Dr. Hall, "I give small doses of the above (℞. Iodidi potass. gr. ij. ad iv. Syrup. aurantii ℨj, Aquæ rosæ ℨix. M. ft. haustus ter in die sumend.) in addition to the calomel and opium, and with the greatest possible success." Dr. Hall narrates a case in which he employed this remedy in combination with bleeding, calomel and opium, strong mercurial ointment and opium, and the extract of belladonna—free purging having been previously employed. "This treatment," he remarks, "produced the most happy effects." We might inquire what share the iodide of potassium and orange syrup had in producing these beneficial results, when combined with such powerful auxiliaries? Can Dr. Hall answer the question? for, to say the truth, we cannot. Never having found the need of such an adjuvant, we should be inclined to doubt its value, and should at all events spare the patient the infliction of swallowing three unnecessary draughts a day—unless, perhaps, we put up and charged for the medicine.

Dr. Hall goes on to offer some common-place remarks on iritis from wounds, with a case in illustration, and on the syphilitic, scrofulous, and arthritic forms of the disease—recommending colchicum in the latter. We have often seen it employed in cases called "rheumatic" and "gouty," but with little or no benefit. The first part of the work is concluded by imperfect sketches of myopia and presbyopia, and a section on the "selection of spectacles."

"Lastly," says Dr. Hall, "let me urge the importance of having glasses of good material, and accurately ground, in order that the refraction may be as perfect as possible, and the power of both glasses the same. Much knowledge is required to accomplish this; and if good glasses are required, some respectable optician must be consulted. Advertising opticians of every grade and class, from the highest to the lowest, are not to be depended upon, and I advise both my readers and patients requiring spectacles, as they value the blessings of sight, to avoid them. Non est tibi fidendum, ut qui toties fefelleris.'" 125.

FISTULA IN ANO.

"*Manner in which the Operation is performed in Paris.*—M. Roux, of the Hotel Dieu, Paris, performs this operation in a different manner to that performed by Pott, and followed by English surgeons. He introduces a long piece of boxwood into the rectum, having its concavity towards the fistula. A silver director

is then introduced along the fistulous track, and its end made to come in contact with the wooden gorget in the bowel. A long, strong, narrow sharp-pointed knife is then introduced along it till it comes in contact with the piece of box-wood. The director is then withdrawn; and by keeping the point of the knife fixed upon the gorget, and withdrawing both together, all the parts between the fistula and rectum are divided. This part of the operation completed, the bistoury is exchanged for a scalpel, and all the hardened base is carefully dissected out. A thick, long probe is then procured, having a button at one end; this is covered with charpie, smeared over with some yellow-looking ointment, and the wound crammed full of it to the bottom." 139.

Dr. Hall thinks that three objections may fairly be raised against this operation—1st. That with the wooden gorget we are operating in the dark, with nothing to guide us.—2d. That the dissecting out of the hardened integument, which is performed "by two incisions crossing each other at right angles, the flaps being each lifted up with a pair of forceps, and cut out with the knife," is worthy only of a by-gone day, but not of the nineteenth century, being only calculated to add to the sufferings of the patient.—3d. That the plan of stuffing the wound daily with charpie, is attended with great pain, produces considerable uneasiness, and most certainly impedes the cure. "It is chiefly," says Sir B. C. Brodie, "in consequence of the use of too much lint in dressing, that further operations are so frequently required before the cure is completed."

It is absolutely necessary to substitute the ligature in those patients on whom no operation can be performed without danger from severe hæmorrhage.

A section follows on Compound Fracture of the Cranium with Depression, in which several cases are given to prove that these injuries frequently do well under ordinary treatment, without the use of the trephine. The results of an experience of some years, induces him to conclude that, in the great majority of cases of compound fracture of the skull with depression, we ought not to trephine, unless it appears clear that the brain is suffering from pressure. If, however, the bone be much comminuted, and the wound in the integuments large, "some of the pieces may be picked from the brain, and others elevated, the several splinters sticking in the dura mater removed, and this without additional injury to the scalp," even in the absence of urgent symptoms.

Omitting the chapter devoted to the consideration of an "Operation in a Case of very large Strangulated Hernia," we may pass on to the Treatment of Bronchocele. The chapter concludes with the following remarks.

"1st. That although it abounds in certain localities, we know not on what it depends, or why it should abound more in Switzerland or Derbyshire than other places. 2d. That we have no reason for concluding that goitre should produce cretinism, although the two are frequently combined. 3d. That it is highly important to attend to the general state of the secretions before attempting to make use of specific remedies, and also that considerable advantage appears (in the cases I have seen) to result from fomenting the part affected with warm water, (previous to using the iodine ointment;) the application of blisters, and

the local abstraction of blood by leeches; the exhibition of liquor potassæ, and alterative medicines." 177.

In his remarks on Cancer of the Breast, Dr. Hall thinks, that too much attention cannot be paid to the state of the system, both before and after the operation, and that the disease returns in some instances from a want of these precautions. The sooner we perform the operation the better, for delays are dangerous: and he would rather run the risk in very rare instances of removing a non-cancerous breast, than by not removing it expose his patient to the chance of becoming a victim to this relentless disease. No prudent surgeon would operate in cases where the whole of the disease could not be removed, or where there is reason to suppose that internal organs are affected. Mr. Liston states that, when enlarged glands are perceptible above the clavicle, or in the intercostal spaces, the practitioner who would advise interference with the original tumour must be grossly ignorant, atrociously unprincipled, or of unsound mind. Where dyspnœa is present, Sir A. Cooper found, on post-mortem examination, water in the chest and tubercles on the pleura. An operation is advised in advanced cases by Dr. Hall, "not because the disease does not frequently return, but because it affords the only chance." He thinks it our duty to tell the patient how very faint our prospects of success are, and yet that cases by Sir A. Cooper and others are recorded which, had they been permitted to run their course, must in all probability have terminated fatally in a few weeks, where an operation had restored the patients to comparative health, and even added some years to their existence.

The general treatment of these cases may be summed up in the words of Dr. Copland—to support "the energies of the digestive functions and the abdominal secretions and excretions, and to impart vigour to the frame by suitable diet and regimen," equally avoiding stimulation on the one hand, or depression on the other; "for if you do," says Sir A. Cooper, "it will be the sure way to hasten the progress of the disease."*

SUPPRESSION OF URINE.

This disease is described as one of rather rare occurrence. Dr. Elliotson had only seen one case, and that occurred after the patient had taken a quantity of corrosive sublimate by mistake. A diminution of the natural quantity of urine occurs in fevers, small-pox, after accidents and surgical operations, from injuries or disease of the spinal cord, and in cases of malignant cholera—but the secreting office of the kidneys may be completely suspended, independent of acute disease, and quite independent of any detectable alteration in the structure of these glands. All such cases end in coma; some with, and others without convulsions—but all have evident symptoms of apoplexy. Suppression of urine includes therefore two divisions, the partial and the complete.

Partial forms are far from unfrequent. Sir B. C. Brodie, in a note to Dr. Hall, states that, in the great majority of cases of this kind that he

* Lectures on Surgery, p. 343.

has seen, there has been some obstruction to the flow of the urine; and it is curious that a calculus blocking up *one* ureter, or a tumour pressing on *one* ureter, will sometimes stop the secretion of urine in *both* kidneys. In one case there was a very enlarged prostate, which probably closed the orifices of the ureters, but the body was not examined after death. In another case there was a medullary fungus of the mucous membrane of the bladder producing this effect. In a third, an enlarged prostate prevented the patient from emptying his bladder. For some time he had not secreted more than half a pint of urine daily, but it was trebled immediately on the catheter being used two or three times daily.

The great and urgent danger of complete suppression were first made known by Sir H. Halford, who narrates an interesting case in the 6th volume of the Medical Transactions. These cases commence very insidiously.

"You find a man," says Dr. Hall, "following his usual occupations, he sends for you to draw off his water, and you discover none in the bladder on the introduction of the catheter. There is a dull uneasy sensation about the loins; a feeling of oppression at the pit of the stomach; a disinclination to move from place to place; a loathing of food. These symptoms are followed by rigors, pain in the head, and drowsiness, ending in coma and death." 192.

The cause may be either functional or organic. Dr. H. attended a case of organic disease of the kidney at Kensington, in which no urine was secreted for the last week of existence. Dr. Hall's attention was however "more particularly directed to this complaint by the following interesting case, in which there was for many hours a total suppression of urine, yet the man recovered, and is now enabled to attend to the duties of his station."

Joseph Lambert, ætat. 27, rather below the middle height, thick-set and stout, with a short neck, and florid complexion; is often exposed to cold and wet in his capacity of under-gamekeeper to Earl Spencer. March 18th, 1840, he called, complaining of pain at the pit of the stomach, and diarrhœa. 19th. Dr. H. called to see him at 9 in the morning, and found him walking about in great pain; his face flushed; tongue coated; pulse 120, quick and full. At 7, feeling uneasy, he had got up to make water, and could only void a few drops—has not passed any urine for the last 18 or 20 hours—upon placing the hand above the pubes it was at once evident that the bladder was not distended; a tea-spoonful of very acid urine (all he had passed) was shown. Not a drop of water escaped on the introduction of the catheter. The pain in the loins was at times severe, followed by a sensation "as though the small of his back was half broken." The eye was dull and heavy, the pupils considerably dilated, and he complained of slight drowsiness and pain in the head. V.S. ad ℥xvi. The blood was dark and thick; since the bleeding has had a motion, which is pale and watery. He was ordered to drink freely of linseed tea, to put his feet in warm water, to be followed by mustard poultices; to have a warm bath, and not to leave his bed. ℞. Hyd. chorid. gr. viii.; Pulv. lyttæ, gr. j.; Ol. tiglii, ♏iv.; Ext. hyosciami, gr. iv.; Misce, et divid. in pil. iv. Sumat j. quaque tertiâ horâ. ℞. Sodæ sesquicarb. ℨj.; Pulv. potassæ, nit ℈j.; Træ hyosciami, ℨij.; Tr. scillæ, ℨj.; Tr. lyttæ,

ʒj.; Mist. camph. ℥vss. M. capiat coch. larga duo quaque 3tia horâ. ℞. Ol. terebinth. ℥ss.; Spir. camph. ℥j.; Linim. sapon. ℥iss. M. ft. embrocatio lumbis applic. Three o'clock, p. m. a blister to the loins.

6, P. M. Pupils much dilated; complains of more pain in the head; answers questions in a quick, sharp manner, and is evidently becoming delirious. 12, P. M. No better; has had two more evacuations, but has not passed any water. 20th. 9, A. M. Has passed a bad night. Face flushed; pupils still dilated; complains of great thirst; skin hot and dry; pulse 90, slow, and labouring. The catheter was introduced, and two ounces of urine drawn off—all that had been voided for 42 hours. Some James's powder with calomel was now ordered, and spir. junip., træ humuli, and magnes. sulph. as a draught. At 9 o'clock, P. M. he was decidedly better, the skin moist, pulse 72. Had made about three ounces of urine since the morning. ℞. Pulv. antim, pot. tart. gr. j.; Magnes. sulph. ℥ij.; Træ lyttæ, ʒj.; Syrup. tolut. ℥ss.; Aquæ, ℥vss. M. sumat. coch. amp. duo quaque 2nda horâ. 21st. The only food he has hitherto taken is linseed tea. This morning he is much better; less pain in the head; no pain in the loins; skin moist; pulse 82. Bowels well opened during the night, and the secretion of bile increased. To continue mixture. Has passed since last night about ten ounces of urine. From this time he daily improved, and was soon able to return to his usual duties.

The chapter which succeeds contains the particulars of two or three cases of uterine hæmorrhage, where the placenta was situated over the os uteri.

Twenty pages are devoted to the consideration of gout and rheumatism, containing no addition to our knowledge of these diseases, nor of the best modes of treating them. Dr. Hall thinks that colchicum must be continued for some time after the cure of an attack of the gout, if we wish to remove the diathesis altogether, "and," says he, "I honestly think that this medicine may be made a preventive as well as a curative of gout." The chapter is concluded in the following language:—"As I write my memory recals cases of *bloated dropsy, of livid asthma struggling for breath, of tottering palsy, of yellow-faced jaundice, of red-eyed delirium, of limping gout grinning with pain, of musing melancholy,* and *incurable insanity;* and if a pupil ask me the cause of these fearful inflictions, I answer, they are too often the dieases of intemperance!!" "Temperance," says Burton, "is a bridle of gold, and he who can use it aright is liker a god than a man." "If you would be well," says Abernethy, "live on sixpence a day and earn it." "The pith," says Dr. James Johnson, "of all that has been written on hygiene, and the prevention of disease—and of the Proteian disorder among the rest—might be included under two heads, almost in two words—TEMPERANCE and EXERCISE—we must keep the body active and the stomach empty."

The work is concluded with some judicious remarks on diet and the disorders of digestion. "The age of farce," Dr. H. remarks, "is almost gone; let us hope those also of the St. John Long's, of the Balm of Gilead, the Real Blessing to Mothers, Morrison's and Parr's Pills, are also numbered, and that, for the future, we shall be permitted to live without groundless apprehension, till we reach the winter of old age, and at last die a natural and peaceful death. We fear that a superstitious love and

belief in mystery is a predominant feature of the public mind, and will still cast a charm around any novelty which promises more than genuine knowledge can hold out.

In stating our opinion of this volume, we find that it is utterly void of original matter, and consists of incomplete and unconnected materials; the first trait renders it of but little value to the experienced practitioner, whilst the last renders it equally useless to the student. The first part is clearly written, and shows that the author is tolerably well acquainted with ophthalmic pathology. The chapter on suppression of urine is the best of the second part, and is worthy of perusal, but, on the whole, we know not to what class of readers we can conscientiously recommend the volume.

I. Posthumous Extracts from the Veterinary Records of the late *John Field*. Edited by his Brother, *William Field*, V.S. London, Octavo, pp. 236. Longman & Co.

II. The Veterinarian, or Monthly Journal of Veterinary Science. Edited by Messrs. *Youatt* and *Percivall*. London.

In our last number, (page 426,) we suggested the propriety of all medical men cultivating a more regular and extensive acquaintance with the various accessory branches of professional knowledge—branches which, although not indispensably necessary for the fulfilment of the ordinary duties of the Healing Art, cannot fail to have a more or less direct influence in establishing some of its most important general truths, and consequently in improving many of its practical details. Of these, Veterinary, or as it might be more properly called, Comparative Medicine, is certainly one of the most valuable. The diseases of the lower animals are, in very many respects, quite the same as those which affect ourselves; they obey the same laws, arise from the same causes, and generally are remediable by the same or very similar means. The grand point of difference is the absence of mental or physical influences in the one set of patients, and the often paramount and preponderating agency of these, in the other. In this respect, Infantile Medicine approaches nearer in its general principles and applications of the Veterinary Art, than the medicine of adults. The young child is exempt from the disturbing influences of those passions and emotions, which are apt at one moment to excite, and at another to depress the mental and corporeal energies of the grown-up-man; so are all the lower animals. Hence it is that the diseases of both are, on the whole, of a simpler and less complicated character than those of adult human beings: more violent generally while they last, but certainly more under the control of remedies, and less disposed to the lingering and unmoved.

If indeed Veterinary Medicine had no other claim on the physician's attention than that of having suggested, and of having afforded the means of realising the truth of *Jenner's* immortal discovery, this alone might be

sufficient to demand for it his most respectful study. But there are other points—and those too not of trifling importance—in which the two branches of the Healing Art may be said to touch each other. The disease, for example, of Glanders in the horse, is unfortunately now known to be readily communicable to the human subject, exhibiting in him all its characteristic phenomena; and of late it has been alleged on good authority that the reverse also holds good; viz. that the matter taken from a glanderous human patient and inoculated upon a horse or ass will convey the genuine disease to them. Here then we have a remarkable instance of a mutual and alternating relationship.

Again; the history of the Malignant Pustule—to which we have adverted at some length in the Foreign Periscope of our last two Numbers—affords another proof of the intimate connexion between the diseases of the lower animals and of man. But there is a subject of still more extensive and important interest than either glanders or malignant pustule, and one that demands far greater attention than it has hitherto met with from our profession—we mean the relations that exist between the origin and diffusion of the Epidemic diseases of man on the one hand, and of the Epizootic diseases of horses and cattle on the other. Much curious and most valuable information remains to be discovered on this interesting topic of professional research—information that may yet lead to some precious improvement in all that pertains to the hygienic and sanatory discipline of every country without exception. Our neighbours, the French, have on this, as indeed on most other subjects of professional research, anticipated our exertions. Let us follow their good example without delay, and strive to come up with, if not to get the start of, our *devanciers* in this very useful pursuit. We mentioned, some time ago, that M. *Rayer* had begun a new Journal on Comparative Medicine; and already several numbers of this periodical have issued from the press. This fact alone shows the importance which that distinguished physician attaches to this hitherto unexplored—at least by physicians—field of professional inquiry. To the credit of France also let it be told, that, for some years past, its far-famed Institute has so thoroughly recognised the importance of Veterinary Medicine and the respect that is due to its professors, as to have elected, on a recent occasion, M. *Barthelemy* to the dignified post of the president's chair. The Royal School at Alfort near Paris, is a noble establishment, and is often the daily resort of some of the most eminent physiologists and practitioners of that metropolis. Hitherto the military veterinary surgeons have not occupied the position in the French army, to which they are, if men of education, most justly entitled. They rank only as *sous-officiers*, not much above the master-tailors and master-saddlers of the regiment. But from the well-known impartiality and active sagacity of the present illustrious Minister of War, it is confidently expected that this evil will very soon be rectified. If there was no other motive to prompt the change, that of the national interest and welfare will inevitably force any ministry to attend to it without much delay. The expense, to which France is annually subjected for the maintenance of her Cavalry Establishment, is enormous; and it is said that much of the present outlay might be avoided, if a greater encouragement was held out to expert and well-instructed veterinary surgeons attaching themselves to each corps.

The following paragraph from a well-written appeal of M. *Renault*, the Director of the Royal Veterinary College at Alfort, to the French Parliament, on the claims of his professional brethren, will be read with interest.

"If there is a fact," says he, "incontestible and unfortunate, it is the frequency of the diseases which prevail among the horses of our regiments, and the frightful mortality by which they are decimated. Every year our losses of this kind, and at the same time the millions of money which they subtract from our treasury, compromise very seriously our military situation, by weakening our cavalry force. . . . . . We, more than any other nation in Europe, should feel a deep interest in the preservation of our cavalry, because we, more than any other country, have not the means of replacing them." M. *Renault's* energetic remonstrance will have its effect. As we have said above, the motive of self-interest will, ere long, force nations as it does individuals on all occasions, to grant what perhaps might not be conceded to the claims of justice.

It would seem, from an interesting paper by Mr. *Wilde*, in the July Number of the Veterinarian, that the Austrian Government is fully alive to the importance of having an efficient corps of veterinary surgeons, not only attached to their army, but also dispersed over the country. The Veterinary Institution at Vienna is most liberally endowed, and very admirably conducted. The course of study prescribed is certainly, as far as we can judge from the report, very complete—embracing not only the Anatomy and Diseases of the Horse and other domestic Animals, but also Natural History and Hygiene, Chemistry and Physics, and special lectures on Epidemics, Epizootics, and Veterinary Police. In Austria, many of the general medical practitioners and surgeons have attended the lectures, and graduated at the Veterinary College. Those gentlemen, being afterwards distributed over different parts of the Empire, practise both branches of the profession, with no inconsiderable advantage, both to themselves and to the inhabitants. Would not such a custom as this, we may fairly ask, be much more creditable among ourselves, than the too frequent one of country apothecaries, or *doctors* as they are usually called, eking out their incomes by selling tea and sugar, perfumery, and cigars? Let no medical man suppose that there is anything derogatory in following an occupation which such men as *Coleman*, *Blaine*, and *Field* have adorned, and in which Messrs. *Youatt* and *Percivall* are now engaged.

To these two last-named gentlemen, Veterinary Medicine in this country is deeply indebted for their successful labours in elevating it as a liberal calling. Their excellent works are known to many out of their profession, and every one in it, we believe, is willing to admit their great practical skill. The numerous writings of Mr. *Youatt*, in particular, have exercised a most salutary effect, in drawing general attention to his favourite pursuit. His enlightened zeal in promoting, by every means, a more liberal course of education among the veterinary students and younger members, and in uniformly inculcating the precepts of humanity and benevolence, cannot fail to have a truly beneficial influence upon all.

"I would urge," says he, "upon the young pupil to make himself acquainted with the chemistry of agriculture, the history of the growth and characters of

plants, and the different processes by which they are brought to maturity. I would have him study the history and character, as well as the management of the different breeds of cattle—having also in reserve the anatomy, and diseases and management of all our domestic animals. I would have him be perfectly acquainted with these things, and he would gradually regain the esteem and confidence of the agriculturist, and be his chosen friend and adviser."

The impulse, that has of late years been given to the study of agricultural chemistry, and the growing enlightenment that bids fair to spread among our farming population generally, must be felt, and we doubt not, will be duly appreciated by those, who profess to be acquainted with the habits and diseases of the lower animals. Thus the improvement of one class will inevitably induce that of another, with which it is brought into contact, and the general result will be a wider diffusion of useful knowledge, and an elevation of all sorts and conditions of men to a higher position in the social scale.

It will afford us great pleasure to contribute to this good cause by an occasional article on Veterinary Medicine in this Journal; the present may be taken as a pledge of our good wishes and intentions.

The Posthumous Extracts from the papers of the late Mr. *John Field* may be described as Clinical—or shall we call them, Constabular?—Reports of Diseases among Horses. It is a work of very curious and instructive information. The "Veterinarian" is a well-established journal, under the joint superintendence of Messrs. *Youatt* and *Percivall*: it has already attained its XVI. Vol. The numbers, to which we may make reference in the subsequent observations, are those from January to October of last year.

The first subject we select for comment is that of Glanders and Farcy. Several cases are related by Mr. *Field*; but before alluding to these, we shall make a few general remarks on the leading features of these allied diseases.

Till within the last eight or ten years, it was generally believed that they belonged exclusively to the horse, the ass, and the mule. To these we must now add the human subject; not a few cases having been observed in men who have had to do with glandered horses, both in this country and on the continent—the disease having been transmitted either by the direct contact or inoculation with glanderous matter, or by the atmosphere becoming tainted and infected.

We have said that Glanders and Farcy are allied diseases. Either of them may exist alone and by itself; or they may be co-existent one with the other. Hence veterinary writers talk of Simple Glanders, and of Farcy-Glanders. Of both these diseases there are two kinds or forms—the acute and the chronic.

Let us first attend to Acute Simple Glanders.

Its characteristic symptoms in the horse are described to be—intense inflammation of the pituitary membrane, attended by erosions, which soon pass into chancre-like sores—swelling of the lips and nose—rapid extension of the ulceration, giving rise to a purulent nasal discharge, which often becomes a purplish or bloody fœtid sanies—subsequently gangrene of the Schneiderian membrane, occasionally with hæmorrhage—painful swell-

ing of the sublingual glands—inflammation of the conjunctivæ and eyelids, quickly passing into a livid and swollen state, with an offensive discharge, and—fever of a putrid or malignant character. The breathing becomes more and more hurried and oppressed, and the superficial vessels congested with blood. The animal usually dies within a few days, if the disease does not pass on to the second or chronic stage.

When the foregoing state is complicated with Farcy, the disease, as we have said, is called Farcy-Glanders, and then it exhibits the following additional phenomena, besides those already mentioned—tumors about the legs, lips, face, neck and other parts of the body, which are at first hard, and afterwards soften, burst, and degenerate into foul ulcers.

These tumors vary a good deal in size in different cases. In some cases they are small, and create little distress; while, in others, they are exceedingly large and painful, and rapid in their course. Numerous lines of communication are usually observed between these tumors or ulcers, more especially when they are situated on the inside of the limbs: these lines are caused by inflamed absorbent vessels.

The writer, from whom we have borrowed these remarks, propounds the following pathological views, in reference to the two diseases. "We see clearly," says he, "that Glanders is essentially a disease of the respiratory organs, although other parts become implicated during its progress. We see also that Farcy is an affection of the glands and absorbents; and that each exhibits the same, or nearly the same, symptoms, and pursues the same course in the human subject as it does in the horse. Although these varieties of disease are developed in different structures, and although it may not be easy to give a satisfactory explanation of the nature of their relationship, still their identity is a fact, which experimental inquiries have fully established. The Glanders may appear first, and the Farcy be superinduced; or *vice versa*. But recent investigation has gone further than this, and has clearly proved these two facts; *first*, that, with the matter taken from the nostrils of a glandered horse that is quite free from Farcy, we can induce this latter disease, and often too in its simple uncomplicated form, in another animal that is perfectly healthy; and *secondly*, that simple Glanders may be generated merely by inoculation with the matter of a simple farcied tumor. This is not indeed what we should have expected, reasoning from analogy. We might naturally suppose that the matter, that is inoculated, would produce the exact type of that form of the disease by which it was generated, and not one of a different aspect, and belonging to a different structure. In Glanders, it is the mucous membrane of the respiratory organs that is essentially affected; while in Farcy, the absorbent vessels and glands are unquestionably the seat of the morbid action. The considerations, to which we have now alluded, are of great importance, as having a direct bearing on the treatment of *Glanders*, which our present knowledge unfortunately does not enable us to explain with sufficient precision."

The remarks, which Mr. *Field* makes on these two important diseases, are, it is to be regretted, very brief and unsatisfactory.

"Farcy," says he, "is a disease of the superficial absorbents; they become inflamed. It is produced by variation in temperature, or by unequal exercise. It attacks post-horses particularly. It seldom arises from contagion; for by

inoculation glanders is produced. Glanders is also a cause of farcy. We should treat it at first as an inflamed part; subsequently by blistering with the infusum lyttæ, or by firing, by which it is frequently resolved." 176.

The most interesting fact, connected with the cases recorded by Mr *Field*, appears to us to be, that in almost every one—they were of the chronic form—the lungs were found on dissection to be more or less deeply affected with tuberculous disease. One case, indeed, is headed, "Pulmonary Consumption with appearances of Farcy." The impression certainly that has been left on our minds, after the perusal of the various data which we have found in the "Posthumous Extracts," and the Veterinarian, is, that the (chronic at least) forms of Glanders and Farcy are, in very many respects, analogous with scrofulous disease. Unquestionably there is a something superadded to the morbid condition or cachexy, to which the term Scrofula is given; and that *something* is no less than the existence of a virulent and contagious poison, which is capable of direct transmission from one animal to another. Nevertheless, there are not a few points of resemblance between these two equine diseases on the one hand, and that of Scrofula in the human subject on the other; and not the least remarkable of these is the frequent tuberculated condition of the lungs in fatal cases of the former. A statement, in one of the late Reports of the Veterinary School at Alfort, seems to afford some confirmation of this pathological view. It appears that, among the first and most frequent signs of the Chronic Glanders observed at that Institution during the past year, was an engorgement or inflammatory enlargement of the testicles, which usually terminated in a suppurative disorganisation of these organs.

This disease seems to have exhibited not a few of the characters of strumous degeneration of tissue. At least, this idea suggested itself to our minds, when we were reading the description given of it in the Veterinarian.

The same Report proceeds to inform us that, during last season, the Acute Glanders prevailed to an unusual extent among the horses in and around Paris, and more especially among those that were engaged in the toilsome works, connected with the building of the fortifications in the neighbourhood of that metropolis. The excessive fatigue, to which the horses were subjected, is supposed to have been the cause of the great prevalence of the disease; many of the poor animals being often kept at work for 18 out of the 24 hours. As a matter of course, the disease, when developed in one animal, had a tendency to diffuse itself by contagion to others near it. Fortunately, however, the epidemic, although wide-spread, was not of a very malignant character; the mortality being not at all comparable to that which occurred two years ago. Moreover, there was scarcely a single instance of the disease having been communicated to a human being during the past season.

Some interesting facts, relative to the transmission of Glanders, are next mentioned in this French report. For example, it appears from certain experiments that the activity of the virus is not at all mitigated by repeated inoculations; but that this, like the genuine cow-pock matter, retains all its contagious properties as powerfully then, as when first taken from its original source. The virus has been repeatedly inoculated on

cows, dogs, sheep and rabbits; but, on no occasion, has the genuine disease been ever developed in any of these animals; whereas, the same matter inserted into a healthy horse or ass has almost invariably induced the disease.

"We have also tried," continues the reporter, "whether the matter of the nasal discharge, when dried in the open air, preserves its virulent property for a considerable length of time; and we have seen the eschars (?) proceeding from this maceration, macerated and distilled in water, and yet the part being inoculated at the end of six weeks, acute Farcy has appeared. We have tried whether the virulent matter existed elsewhere as well as in the nasal secretion, and we have seen matter from ulcers of the lungs very rapidly producing acute Glanders. The blood too possesses the same virulent properties. Injected immediately after its extraction from the vein of a diseased, into the circulation of a sound horse, it produced at the end of four or five days, a Glanderous eruption."

Glanders, it is well-known, is quite the *opprobrium* of the veterinary art; and unfortunately there seems but little prospect of a successful remedy, or plan of treatment, being discovered. Hear what an able member of the profession in France says on the subject:

"In this year, as in all the preceding ones, we are compelled to confess the complete impotency of all our efforts to cure chronic Glanders. This statement will astonish no one, who is aware of the irreparable lesions which the disease leaves behind. Whoever has witnessed the profound destruction of the Schneiderian membrane—the collections of purulent matter in cavities almost closed—the complete transformation of the pellicular membrane which once closed the walls of these cavities—and if he has examined the lungs and seen the large masses of compact tuberculous matter deposited in their substance, and at the same time observed the serious lesions in different parts of the absorbent system, he will not be much surprised at the impotence of all remedial measures."

The following instance of successful treatment in a case of Farcy-Glanders is related in one of the numbers of the Veterinarian.

A six-year old horse was observed to have a dull drowsy look—his head thrust out, his nose, windpipe and chest being nearly horizontal—and his breathing laborious, from the general swelling of the parts about the throat. He made a noise at every inspiration. On looking into the nostrils, they were found incrusted with purulent matter, and a greenish-yellow discharge flowed out. The Schneiderian membrane was of a dark livid hue, with petechial patches here and there. The submaxillary glands were enlarged and indurated. The fore and hind legs were much swelled and spotted over with pimples—evidently absorbent glands. Some would have called them Farcy buds, although they were not so deeply-seated as these generally are: a thin ichorous discharge oozed out from many of them.

The horse, having previously been removed to an airy box, was bled to the amount of nine quarts: the blood, on coagulating, exhibited a great deal of the buffy coat. Several of the tumors on the legs were freely laid open; an aloetic ball given, and a blister applied to the throat. The nostrils were ordered to be frequently washed out with a solution of the chloride of Lime. Next day, he was again bled to five quarts, and the purging ball repeated: digestive ointment was applied to the opened abscesses. Although many more abscesses—some of a large size—

formed on different parts of the body, and the horse became exceedingly weakened and emaciated, a cure was ultimately effected, "although," says the narrator, "he bears fearful scars on the many parts of his body, where suppuration had taken place."

We may here with advantage introduce two or three abridged reports of cases, that have been recently observed in the human subject, and are narrated in the communication of "Erinensis" to the Veterinarian.

Case 1.—A wagoner, 19 years of age, was admitted into the Hôpital de la Charité on the 18th of October. After a week's general *malaise*, he was seized with intense pains in the ankle and knee-joints and in the muscles of the leg and thigh. The pulse was quick; the thirst great, and fever high. On the 25th several pustules appeared on the instep and upper surface of the toes of the left foot. They burst, and afterwards healed up in the course of a few days; but then a diffused swelling appeared on the front of the upper third of the thigh, followed by two similar swellings, one on each leg. For eight months, a succession of tumors of a similar kind appeared on almost every part of the upper and lower extremities. With the exception however of weakness and emaciation, there was nothing in the state of the patient's health to excite alarm. He was treated throughout the whole of his illness, with bark and wine. On the 5th of July in the following year, (from this we may judge of the tediousness of the disease), Iodine, with the hydriodate of potash, was administered. Soon after this date, he was discharged quite cured.

Case 2.—A groom, who slept in a stable occupied by a glandered horse, was attacked some days after the death of the animal, with the same disease—characterised by the eruption of pustular and gangrenous sores over the body, in the nose and throat, beneath the ears, on the glans penis, and on the feet. The evening of his death, a small quantity of matter was collected on watch-glasses from the gangrenous sores beneath the ear, on the fore-arm, back and shoulder. This was afterwards inoculated upon a foundered mare, which gradually became affected with all the genuine symptoms of Glanders and Farcy. The result of this experiment shows the nature of the disease, of which the groom died. The horse usually catches the disease by the way of atmospheric infection, and not by the direct inoculation of the morbid matter. There is every reason to believe that the human patient also caught it in the first of these ways.

The following is narrated as an instance of severe *Chronic Farcy* in the human subject.

"M. *Leone*, veterinary surgeon in the French army, opened a farcied abscess in a horse belonging to his regiment. As the abscess was large, he introduced his hand into its cavity, to ascertain its extent. There happened to be at the time a slight abrasion on one of his fingers. In the course of a few days this spot became painful, enlarged in size, and covered with fungus-like growths. The wound was cauterised; but it did not heal for three months. Besides the local affection, several painful hard tumors, like those of farcy-buds, made their appearance on the inside of the left elbow. The joint itself became swollen and painful. An abscess formed, and was opened. Others succeeded, and fistulous sores were established. Subsequently the right knee-joint, and afterwards the instep and foot, became similarly affected. Tumors formed and soon broke."

Before dismissing the subject of Glanders and Farcy, we would earnestly recommend to those, who have the opportunities of personal observation, to examine with care the physical and microscopic appearances of the blood,* as well as of the purulent discharges; and to try the effects of some of those saline and mineral medicines, which are known to exercise a marked influence on the condition of the circulating fluids—such as common salt, the chlorate and nitrate of potash, &c., and the preparations of mercury and steel.

We should now, if space permitted, proceed to examine at some length the history of another Epizootic that is, as we have already said, of great frequency and danger among horses, cattle and other animals—to wit, the disease, or perhaps we should rather say the variety of diseases, to which the term of *Influenza* is given.

Mr. *Field* thus describes the symptoms of the Epizootic of 1819:—Quick full pulse; moist tongue, but feverish smell and red appearance; eyes much inflamed in some cases, in others extremely dull and heavy; and eyelids closed, indicating severe pain in the head. The breathing not much quickened, or oppressed, unless just previous to dissolution. Blood drawn with great difficulty, and, when coagulated, extremely firm and showing a thick buffy coat. In some cases, tremendous swellings in different parts of the body, especially of the legs.

The disease of 1823 was still more severe and fatal. It affected the whole body with such excessive inflammatory action in all its parts and organs, that the animal was very quickly reduced and destroyed by it. The most active antiphlogistic treatment was necessary; those cases doing best, where the regime was most vigorous, provided purging was not excited; for, when that was severe, the animal generally died.

But let it not be supposed that Influenza among the lower animals is always, or even generally, of so very inflammatory a type, as represented by Mr. *Field* to have been the case during the Epizootics of 1819 and 1823. The danger indeed generally arises from the *pleuro-pneumonia* that may be present; but then there is usually existing at the same time such a prostration of all the vital forces as to indicate an adynamic, if not a typhoid state of the system. The signs and symptoms in unfavourable cases are reported to be—great difficulty of breathing, the expiration being accompanied with a grunt—absence of the respiratory murmur over various parts of the chest—bronchial respiration round the margin of the hepatised portions—increasing prostration of strength—quick but feeble pulse—decrease of animal heat—torpidity of the nervous system—dysentery or diarrhœa—and an accompanying fever of a low typhous character.

"The characteristic pathological feature," says a most intelligent writer in the Veterinarian, "of this disease is an early effusion of lymph into the pulmonary vesicular structure and bronchial tubes, as the termination or natural means of

---

* We may here observe that it would be well if veterinary writers were more in the habit of recording in all cases the state of the blood, when drawn and allowed to coagulate. Unless this is done, it is not possible for the reader to form any accurate conclusion as to the propriety, or not, of the practice in any particular case. Our *confreres* must have observed that this is invariably attended to, in drawing up clinical reports.

relieving inflammation in their parietes and parenchymatous tissue generally. There is also an effusion of water and lymph into the thoracic cavities. Except the bronchial glands being occasionally in a state of suppuration, I have very seldom found any appearance of pus in this disease."

He then cautions his readers not to allow themselves to be led into the very dangerous error of regarding the disease as mere ordinary bronchitis, pneumonia or pleurisy, and such as to require the usual active depletory remedies. Antiphlogistic measures may be necessary in the very early stage and to a certain extent; but their effects must be very carefully watched, and they should never be pushed very far. Calomel and the hydriodate of potash have been found of essential benefit, especially when they are combined with nitre, opium, and the tartrate of antimony. Blisters also should be applied along the course of the trachea and over the sides, from the spine to the sternum.

We have omitted to mention that the heart and its capsule are often very seriously affected in this disease. Indeed one gentleman seems to suppose that it essentially consists in a subacute inflammation of the central organ of the circulation,—this being accompanied however with symptoms of a typhoid state of system, and often requiring the use of diffusible stimulants internally, and blisters outwardly.

Pleurisy is a frequent disease among horses. It may be either acute or chronic. The premonitory symptoms are trembling or shivering, and a *staring* of the coat, (this, we suppose, is equivalent to the *Cutis anserina* in the human being.) When decided, the disease is easily recognised; the pulse is full, hard, and wiry; the breathing is uneasy and restrained, the inspiration being quick and interrupted, while the expiration is slow and prolonged; the animal is stiff and unwilling to move; he stands with his neck extended out and his nose protruded; pressure on the side gives pain, causing the animal to *grunt*, followed by convulsive twitchings of the Panniculus Carnosus. Similar twitchings succeed a faint suppressed cough, or rather sneeze, causing a trembling folded appearance of the integuments, and lasting some seconds.

In not a few cases, the inflammation of the pleura terminates in effusion into the chest—indicated by abatement of the fever symptoms, increased dyspnœa, anasarca of the legs and integuments of the chest and abdomen, dulness on percussion, and indistinct respiratory murmur in the inferior costal regions.

The last stage of the disease is marked by the following symptoms: the legs are extended and separated; all the auxiliary respiratory muscles are called into action; the dilated nostrils, staring eyes, anxious countenance, and laborious heaving, strikingly indicate the threatened suffocation. A mucous rattle is heard in the windpipe, the extremities become cold, the pulse fluttering or scarcely to be felt, and death soon closes the scene.

As in the human subject, chronic or rather subacute Pleurisy is apt to come on in a very insidious manner; and hence the disease is often far advanced, before application is made to the Veterinary Surgeon. We need scarcely say that the substance of the lungs is, in many cases, implicated at the same time; then, we have a case of genuine Pleuro-pneumonia; the *post-mortem* appearances of which, in the horse, are exactly

those observed in man. A bad form of the disease is that often met with during the prevalence of epizootic febrile disorders, or *influenzas*, as they are often called.

The cause of the increased danger is that there is a typhoid or adynamic state of the system at the time. A similar remark is applicable to that form of pulmonic inflammation, which not unfrequently supervenes after severe or extensive burns.

Pneumonia in the horse is occasionally followed by the formation of vomicæ or abscesses in the substance of the lungs; these are sometimes quite black and gangrenous. In such cases, the expired air is most fætid and offensive.

Mr. *Field* relates a case of Laryngitis or Croup, threatening suffocation, in which tracheotomy was performed with success. It was neccessary to keep the wound open for a considerable time, as the aperture of the glottis seemed to have become much narrowed.

We now pass on to notice a very remarkable form of Hepatic Disease in the horse, which well deserves the notice of the human pathologist.*

It appears that, though a horse seems to be in perfect health, and is moreover capable of laborious work, the liver may have become so softened and pulpy and its peritoneal covering so loosely adherent to its parenchyma, that a sudden exertion will cause a rupture of the viscus, and an immense extravasation of blood into the abdomen, to take place. The accident, as a matter of course, is generally fatal, and the death is sudden. The curious circumstance in this disease is that, in most instances, there are no premonitory symptoms of any hepatic derangement; the animal often has been remarkably healthy, the biliary secretion regular, and the alvine excretions natural. When the extravasation is large and rapid, the symptoms are those of internal hæmorrhage—pulse irregular and indistinct; action of heart tumultuous; profuse sweating; pawing; curling of the upper lip and pouting of the nose; lifting the hind legs to the belly; hurried respiration and deep and frequent sighing; distended abdomen; blanched conjunctiva and buccal membrane; amourosis; extreme debility; fainting and death.

In some cases, however, although the parenchyma of the liver has degenerated into one huge mass of bloody pulp, its peritoneal coat remains entire, or is only slightly ruptured. The symptoms then are much more indistinct than those we have just enumerated, and often far from being satisfactory, as regards the diagnosis. Weakness and faintness at work, diminished appetite, swelling of the hind legs, fulness of the abdomen, buccal and Schneiderian membranes pale, pulse frequent and feeble, occasional sighing, partial amaurosis, with dilated pupil of one or both eyes—these are the most common features of the case.

Mr. *Field* mentions a curious circumstance, connected with the lesion of the sight.

---

* "The disease is called by Mr. *Field*, and other veterinary writers, Hepatirrhœa. Would not Hepatorrhagia be more correct? The one word expresses a *flowing*, the other a *rupture* or *rushing out*; the Greek roots being ῥεω in the one case, and ῥηγνυω in the other.

"It is a remarkable fact," says he, "that, notwithstanding the patient may rally for a time from the disease, and regain his condition and strength, and return to work, I have neither seen nor heard of a single instance of the recovery of the sight, although in one case the horse worked for twelve months afterwards."

When the case has proved suddenly fatal, the abdomen is found on dissection deluged with blood, sometimes to the amount of ten gallons, or upwards. The peritoneal coat of the liver is usually found to be rent in one or more places, and its parenchymatous substance reduced to a soft lacerable mass, in some places so broken down that small portions of solid matter float in the semi-fluid or grumous mass into which other parts are converted. The weight of the liver and coagula has been known to exceed sixty pounds.*

An interesting case of Hepatorrhagia is published in the January number of the Veterinarian. A fine fiery horse—that had been hunted the day before with some harriers, and had been ridden (in the true spirit of larking,) over several rasping fences, which he had done in an extraordinary manner—was suddenly taken ill. He had seemed in perfect health up to the time of seizure. When visited, he was apparently in considerable pain, with distended nostrils, laborious breathing, and rapid tumultuous action of the heart.

He died very shortly afterwards. On dissection, the liver was found excessively diseased; not a fifth part of its substance remained; the rest had become absorbed; and the peritoneal covering was distended to an enormous extent with coagulated blood. It had given way at one point, and allowed the escape of the blood into the abdominal cavity.

The violent exertions, which the horse is so often made to undergo—taken in connexion with the circumstance of the absence of a gall-bladder, and the consequent liability of the biliary tubes to extreme distention on many occasions—seem to be the main cause of the disease in question.

The liver in the horse is also liable to the formation of Abscesses in it,—either single and large, or numerous and of smaller size, being dispersed through its parenchymatous tissue. In one case, no less than 29lbs. of pus were found in one hepatic abscess.—At other times, the liver is affected with general enlargement or Hypertrophe.—A curious case is related of Melanosis involving all the abdominal viscera, the liver among the number: the spleen was of an enormous size and weighed 67lbs.; its natural weight not exceeding four or five pounds.

We shall now glance at some of the diseases of the Intestines.

The following vivid enumeration of the symptoms, which accompany ILEUS from intus-susception of the bowels or any other cause, is interesting.

"Pain, restlessness, in some cases approaching to madness; unrestrainable; wandering about; rolling on the back; sweating, in some cases profuse; crouching; sitting on the hind quarters, almost diagnostic; anxious countenance;

---

* The hæmorrhage, Mr. *Field* says, is from the branches of the *Vena Portæ*; for, if water be injected into this vessel, the *Vena Cava posterior* having been previously tied, it will escape from innumerable orifices in the abraded parts of the liver.

frequent feeble pulse; belly at first of natural size, subsequently fuller, in some cases distended, dependent upon the locality of the intus-susception; membranes, in advanced stage, turgid, injected; mouth moist and clean, or furred and offensive; respiration accelerated; continued restlessness; rearing with fore legs into manger, and standing upon that *point d'appui;* looking back from side to side; extremities cold; pain absent, tranquil; sighing or snorting; death. The sighing may exist in some cases, and not in others; and in some, retching and vomiting at stomach."

The picture is quite admirable from its truthful force. The most frequent seat of Intus-susception in the horse is where the ileum joins the colon. On being called to such a case, the veterinary surgeon is very properly enjoined by Mr. *Field* to "examine the rectum, the groin and abdominal rings, and the neighbourhood of the umbilicus for hernia." The advice should not be forgotten by the physician: cases are every now and then occurring of very awkward mistakes being committed by not attending to it.

Cold applications, clysters of oak-bark, and injections of vinegar and water are recommended. Why not rather tobacco enemata, with or without bleeding? Our author makes no mention of purgative medicines; are we to infer that he does not approve of them? Would that they were less used in cases of obstructed bowels occurring in the human subject! often they do infinite mischief, and only aggravate the existing impediment.

Hernia appears to be a not unfrequent complaint in the horse. Several cases of Scrotal hernia are related by Mr. *Field*. Our readers may like to know how the protrusion is reduced. Here is one of the clinical reports.—A horse was brought to the hospital, suffering much pain, which had lasted for more than six hours. The off-side of the scrotum was full and tense, but not crepitant; the spermatic cord more than doubled in size. The animal was immediately cast and laid upon its back. My right hand, introduced *per rectum*, readily grasped the intestine, which was in front of the spermatic cord; and by carefully drawing it downwards, an assistant at the same time elongating and compressing the scrotum and drawing it upwards, the knuckle of intestine at first gradually, and then suddenly, slipped in, He was afterwards bled, and three days afterwards discharged "perfectly cured."

In one of the cases reported, an operation was necessary, the *taxis* failing of success, and the intestine being strangulated.

"An incision was made through the integuments at the upper part of the scrotum into a mass of congealed extravasated blood, surrounding the testicle, at the upper part of which were two convolutions of intestine through the abdominal ring; they were not greatly inflamed. Having enlarged the ring by means of the bistouri cachée, the intestine was returned. The horse showed no symptoms of pain in the belly. At night, the testis on that side, being in a gangrenous state, was removed, a ligature being placed on the artery." 99.

The patient died on the second day afterwards. On dissection, a portion of the ileum, which had been strangulated, was found in a sloughy state.

An instance is mentioned, where the hernial swelling was mistaken for an abcess, and an opening made into it with a lancet; and another, where a strangulated Ventral Hernia was completely hid by the penis: the animal died unrelieved.

As in the human being, a portion of intestine sometimes passes into or through an opening in the diaphragm, giving rise to all the symptoms of strangulated Hernia, while there is no external swelling at any part of the abdomen. Sometimes the symptoms are far from being strongly marked during life ; and then there is necessarily a good deal of ambiguity in the diagnosis. In one case of this kind, where the animal died on the second day, the contents of the abdomen, on dissection, appeared at first to be quite natural ; but, on examining more carefully, it was found that several feet of the Ileum and Jejunum had passed through an opening in the tendinous part of the diaphragm on the right side, and were strangulated. Mr. *Field* very wisely concludes his report by remarking, " how necessary it is to be exceedingly cautious in cases of this description, not only in speaking of the result, but also in forming too hasty an opinion as to the seat of the disease."

Several cases of *Rupture of the Stomach* are related ; two also of ruptured Intestine—in the one case the colon, in the other the rectum, was the affected gut. We have likewise an instance of sudden death from Hæmorrhage into the stomach, and another from the bursting of the mesenteric vessels, and the consequent extravasation of blood into the cavity of the abdomen.

The formation and impaction of Balls and Concretions in the intestines are often the cause of alarming illness in the horse.

Among the abdominal cases is one, which is headed, " Paralysis of the Intestines." A horse was bled and opening medicine given, in consequence of a swelling of his legs, &c. Two days afterwards there were symptoms of colic, for which some anodyne medicine was administered. The pain continuing next day, the dose was repeated twice. On the following day, there was considerable restlessness and tension of the abdomen ; no evacuation. Four pounds of blood were taken ; and this caused great faintness. Clysters were rejected as soon as administered ; and the last attempt to administer one of spirits of turpentine and linseed oil produced immediate fainting ; and in two hours afterwards the animal died. On dissection, the stomach and colon were found to be much distended with fæces and confined air, but there was not the least appearance of inflammation in any of the abdominal or thoracic viscera. The enormous swelling of the belly and other symptoms sufficiently account for the death, which (says Mr. *Field*) was caused by Paralysis of the Intestines.

In another fatal case, in which there had been constant vomiting for some time before death, the duodenum was found much distended for about a foot and a half of its length, and then exceedingly contracted, as if it had been tied with a band. On opening the intestine, it was found to be extremely inflamed. almost verging to gangrene, just anteriorly to the pallid and contracted portion. These cases will naturally recal to the reader's mind some of the views of Dr. *Abercrombie*, relative to intestinal disorders.

Tetanus appears to be most frequently induced in the horse by some injury or irritation of the foot ; such as the puncture of a nail, or sharp piece of bone, a deep-seated abscess, &c. Sometimes it follows the ope-

ration of docking the tail. The usual symptoms are—retraction of the eyes within their sockets; the membrana nictitans more or less protruded; the ears stiffened; the jaws closed and perhaps firmly locked; the nostrils dilated; the abdominal muscles much contracted; the back more or less rigid; the tail elevated and tremulous; the limbs stiffened and extended, and every now and then tremulous with spasm. In one case, we read that there was "dreadful Opisthotonos, followed by death."

Mr. *Field*, in treating this formidable disease, usually had recourse to excision of the wounded part (if any,) and to subsequent cauterisation; also to venæsection, purgatives, and mercurial inunction of the whole body.* Many of the cases proved fatal. The morbid appearances, found on dissection, were—as in the human subject—by no means uniform or satisfactory. The lungs were usually very much congested, and the brain and spinal marrow in most instances highly injected, if not positively inflamed.

The following case of *Ligature* of the *Carotid Arteries*, which was successfully resorted to for the cure of a head-complaint, would have delighted the late *Caleb Parry* of Bath:

A horse had been long suffering for a cephalic affection—indicated by stupidity, occasional delirium, partial paralysis of the optic nerves, &c.—for which blisters and a depletory regimen had been fairly tried, but without success. The left carotid artery was accordingly exposed and tied. By the time the wound had healed, the animal had quite recovered from his disease. For nearly a twelvemonth afterwards, he remained well; but, then the cephalic symptoms returning, the other carotid was tied. In the course of a few days, the animal had quite recovered his senses in every respect; his appetite was good, and he was extremely lively and perfectly manageable.

Hydrocephalus.—A mare was brought to the hospital with inflammation of the brain. The active symptoms abated; but there remained great dulness of the eyes, and a *propensity to bore with the head.* A bleeding was ordered, and also purging medicine; the bleeding was repeated the same night. Next day the animal was so much better as to lead Mr. *Field* to form a favourable prognosis; but, on the following one, there was an aggravation of all the symptoms—great restlessness, much *boring*, stupor with occasional phrenzy. The animal was twice bled. Next day, in addition to the previous symptoms, the breathing was slow, the pulse intermittent and at times scarcely perceptible: at night she died. On *dissection*, the brain was found slightly inflamed; the two ventricles were distended with water; and two dark spots were found on each optic thalamus.

Mr. *Field* suggests that, as there was but little active inflammation of the brain in this case, blisters might probably have caused the absorption

---

* In one case, both carotid arteries were tied at once; but the animal died two hours afterwards. The experiment was—as admitted by the author—exceedingly injudicious. In another case alluded to, he tied them on two successive days; but without producing any decided effect, either beneficial or injurious to the patient.

of the water. *Query?*—Was not the copious bleeding, so late in the disease, injurious? We (*Rev.*) think it was; and still more so in the next case recorded where the horse, after having exhibited certain signs of phrenitis, fell backwards. He was bled largely, purgatives given, and cold lotion applied to the head. At night he again fell down and was unable to rise; the pulse was frequent, but without oppression. The *bleeding was repeated.* Next day he died; and, on examining the brain, the lateral ventricles were found much distended with water, and in each a thick layer of lymph on the optic thalamus. (Had there been no lesion of vision during life?)

Much mischief is often, we are sure, produced in the human subject, by having recourse to sanguineous depletion at an advanced stage of cerebral diseases; and the same, we should suppose, holds true in the case of the horse. After having written this sentence, we accidentally turned to page 219, where there is a report of another case of Hydrocephalus, and were glad to find that our suspicion was confirmed by Mr. *Field's* own experience. The horse, as usual, had been freely bled, but rapidly became worse and died. On dissection, the substance of the brain was found quite pallid, and the lateral ventricles were filled with a transparent fluid. Our author very judiciously appends this remark:—

"The post-mortem examination in the above case, as well as the symptoms during life, forcibly and incontestibly prove the fact, that, in proportion to the increasing quantity of serous fluid, so is there a diminution of blood in the brain and vessels; and also, that an animal under such circumstances cannot bear the loss of blood—extreme restlessness, &c., almost immediately supervening." 219.

To illustrate still more clearly the character of Cephalic disease in the horse, we may here enumerate the symptoms observed in a case of *Encephalitis*, recorded by our author. They were—reeling about in the coach-house—boring against the wall—endeavouring to bite the groom—rushing at any one who approached him—squeaking and striking out when touched: the pulse was quiet. In leading him to the hospital, he nearly ran against some iron railings, in spite of two men who held him. On trying to put him into slings, he struggled so furiously that the attempt was given up. He would now paw, snort, and bore against the wall; then he would rear up and get into the manger. He was freely bled, and for some time afterwards was more tranquil; but again he became violent, reared, fell over, plunged and struggled furiously, and began to snort in the same suffocating manner, with retraction of the false nostrils. In this state he was laid on the ground, and then gradually sunk.

Apoplexy is another disease, to which horses are occasionally subject. Although the brain was not examined in the following case, we have no doubt as to the seat of the lesion.

A gelding, that seemed to be in good health, was put one afternoon into harness, as off-leader in a team. At starting he showed a slight disposition to kick, and, by the motion of his head, appeared alarmed. Before he had gone many steps, he reeled against the near-leader; otherwise he must have fallen. He was immediately bled to a large amount. The respiration was extremely laborious, with mucous rattle—pulse frequent and having a corded feel, but irregular and indistinct—tongue and lips livid—bleeding from both nostrils. The pin was removed from the wound to

allow more blood to flow; but he had not lost above a quart, when he knelt forwards and gradually fell on the ground; he died in about twenty minutes. (Here again, the loss of blood seems to have accelerated the death.)

The next case we select is one of *Apoplexy of the Spinal Cord.*

A horse, whilst exercising, fell suddenly on his head, and turned completely over. He lay almost without motion, and had not the slightest power to stand up. The vision was perfect, and the countenance natural. he tried to neigh several times, but could not give utterance to the sound. He did not struggle or express pain when lifted on, or removed from, the truck on which he was brought to the hospital. He could swallow, and passed some fæces. Death ensued in sixteen hours.

On dissection, the brain was found to be somewhat congested. On laying open the cervical portion of the spinal canal, it was found full of fluid, and a small quantity of blood was extravasated upon the *theca spinalis:* this must have occasioned pressure on the marrow.

Purpura Hæmorrhagica in the horse is characte rised by the occurrence of petechial and ecchymosed spots and patches in almost every part and tissue of the body—on the skin, the Schneiderian membrane, the conjunctivæ of the eyes, under the fasciæ and in the substance of the muscles,* and occasionally also in the lungs, kidneys, and other viscera. The animal is uneasy, and in pain; his breathing is usually hurried and snuffling; and his pulse is rapid and wiry, or full and strong. As the disease advances, the echymosed swellings become confluent; a sero-sanguineous discharge drips from the nostrils; the Schneiderian membrane is sometimes nearly black; the circulation is more frequent and feeble; *the horse paws, or looks back, or anxiously turns his head from side to side* (a graphic description;) he totters, if made to walk about; becomes weaker, and dies. If blood be drawn, it is found to be thin and pallid, and separates rapidly into its two portions. The urine occasionally contains much albumen, and coagulates by nitric acid and heat: sometimes it is mixed with blood.

As Mr. Field remarks, the disease is seemingly referrible to a morbid condition—characterised chiefly by an increased tenuity—of the circulating fluids. There may indeed be present, at the same time, an unusual laxity and dilatability of the blood-vessels, with a certain degree of obstruction in the capillaries, and an augmented impetus in the heart's action; but certainly the primary and essential feature of Purpura is an alteration in the composition and vital properties of the blood itself. This opinion is confirmed by the circumstance of its usual exciting causes being general debility, poor living, unwholesome diet, and excessive labour.

As to the *treatment*, bleeding may be occasionally necessary, when vital organs are affected or threatened; "but it rarely (does it ever?) benefits."*

---

* Mr. *Field* reports several cases, in which bleeding was practised: all thsee proved fatal. In some of the cases, the heart was found on dissection either paler than usual; or dark, flaccid and speckled. As a matter of course, these

Turpentine is useful; so are the sulphate of iron, the mineral acids, &c. The cold affusion is "particularly good." The pure air of the country, with grass feeding, is the best restorative.

In a fatal case of Hæmaturia, the peritoneal coat and cortical substance of the kidney (kidneys?) were entirely destroyed. The ureters were filled with blood: the bladder contained about two pints, mixed with urine. The liver was very pale; the intestines healthy. About a pint of blood was found within the pericardium. In another fatal case, where the quantity of blood lost had been enormous, the tubuli uriniferi and pelvis of the left kidney were found ulcerated, and the texture of the right one was soft and flabby.

We close our article with a few remarks on Calculus in the Bladder, and the history of a case of

Lithotomy.—The symptoms of calculus in the bladder are, as might be supposed, very much alike to those that are observed in the human subject. We read of the animal "staling blood after work,—continually making attempts to stale—straining violently and voiding only a small quantity at a time—and the urine being turbid and alkalescent." The actual presence of the stone is ascertained by an examination *per anum*, and by the introduction of a catheter or sound into the bladder. The following account of the mode, in which a horse is cut for the stone, is well worth a perusal: we cannot abridge it without injury.

"The animal was cast in the usual manner, and both hind legs were drawn to the shoulders, as if for castration. Read's new flexible catheter being passed into the bladder, a quantity of warm water was injected, sufficient to distend that organ and the urethra moderately. The catheter being withdrawn, and holding the penis with the left hand, a slightly-curved grooved staff, two feet long, was introduced, so as for the curved part to come into the sub-anal portion of the urethra, above the posterior edge of the ischium, extending towards the sphincter ani. An assistant kneeling on the left side of the horse, drew the penis forwards with his left hand, and gently pushed the staff backwards with the right, at the same time keeping the groove exactly beneath the *raphe;* this elevated the portion of the urethra to be incised. I then made an incision, a line from and on the right side of the *raphe*, through the skin and fascia, extending the length of it from three to four inches; and, pushing the penis a little on one side, I gradually divided the muscular and spongy portion, and exposed the mucous membrane of the urethra, when the finger readily detected the groove of the staff, into which a small incision was made sufficient to admit the *bistoire cachée*, following which with the index finger of the left hand, the membrane was divided to the rectum. Very little blood flowed, and the water of the urethra gushed out. The staff being removed, I easily introduced the small forceps through the urethra into the bladder, and grasped the stone, a portion of which flaked off. The large forceps were then employed, and, my brother holding the handles, I directed the blades upon the stone, my left hand being in the rectum. Having placed the stone in a proper position, I grasped it with the forceps, and with both hands gave it a half-turn, so as to place its widest axis between the pubis and rectum; and thus, with a moderate force, I gradually and evenly drew it out,

---

are the signs not of a phlogistic, but of an adynamic, disease. We read, however, in the account of one dissection in a fatal case of Influenza: "Dreadful inflammation of the right side of the heart, which was almost black:"—was not this congestion, rather than inflammation?

the neck of the bladder readily dilating. Two stitches were inserted in that part of the incision nearest the anus, the lower part being left to itself." 117.

The calculus consisted entirely of carbonate of lime and animal matter. The animal did well.

A case is reported of Calculus in a mare. It was extracted, although with considerable difficulty, through the urethra by means of forceps, the bladder having been previously filled with warm water. It weighed upwards of 11 ozs. and measured 3⅞ inches in length, and 2⅛ in breadth.

Two ounces of laudanum were given immediately after the operation. Although rather unpleasant symptoms came on, the animal recovered perfectly.

A urinary Calculus, when small, is apt to become impacted in the urethra, and to give rise to retention of the water. Case 54 is an interesting example of this. An incision was made on the under surface of the urethra, and the stone—which was of the mulberry form, with projecting spiculæ on its surface—was extracted, to the great relief of the poor animal, which had been suffering excessively.

Lectures on the Principles and Practice of Physic, delivered at King's College, London. By *T. Watson*, M. D. London, 1843.

A System of Clinical Medicine. By *R. J. Graves*, M. D. M. R. I. A. Dublin, 1843.

We shall commence this article by a condensed analysis of Dr. Watson's Lectures.

In the Introductory Lecture, Dr. Watson describes the general order and arrangement of the course, and defines some of the terms which he shall find it necessary to use. The term *disorder*, which is generally applied to simple derangement of function, where no alteration of structure is presented, he uses synonymously with *disease*, a term generally restricted to maladies attended with appreciable change of structure. The physiological classification of diseases, viz. into diseases of the different systems, he rejects, and for a very valid reason, inasmuch as there are many forms of disorder, that affect all these systems in common, or simultaneously, and comparatively few that are confined to any one of them. The classification of diseases according to the *tissues* he discards, seeing that no useful arrangement could be formed on such a basis, the entire body being more or less pervaded by the intermixture of several of these tissues. The principle of arrangement adopted by our author is in a great measure anatomical, being founded on the anatomy of the regions—the situation of organs. Before attempting to treat of particular diseases, he gives an outline of general pathology. A knowledge of pathology comprehends, according to Dr. Watson—1, a knowledge of the material changes to which the several parts of the living body are subject—2, a knowledge of the processes or actions by which those changes are wrought—3, a knowledge

of the causes which set these processes on foot; and 4, a knowledge of the consequences of the same changes, or of the symptoms they occasion. The solid parts of the animal frame may be altered in *bulk*, *form*, *consistence*, *in their intimate texture* and *in situation*. The fluid parts also may be changed in *quantity*; in *quality*; and in *place*. The solid parts may be altered in *bulk* without any change of texture, and in two ways; they may become larger or smaller than natural—that is, *hypertrophied* or *atrophied*. Hypertrophy is best illustrated in the muscular system. By constant exercise the muscles acquire preternatural volume, weight, and power, seemingly according to a law of the animal economy, that increase of function leads to increase of bulk—the same holds good in other tissues also; wasting of one kidney produces increased bulk in the other. The same thing happens in the case of the lungs. The law resembles one familiar to political economists, viz. that the supply of a marketable commodity is regulated by the demand for it.

Hypertrophy unattended by any change of texture—seems to depend on more active nutrition of the part. Such hypertrophy has not the nature of disease—it is, however, often connected with disease, though not itself a morbid process. Thus we have it in the hollow contractile organs, as the heart, urinary bladder, and the intestinal tube. If these instances of hypertrophy are to be considered morbid, it must be only as associated with disease. Many consider the hypertrophy as constituting a source of disease, and a cause of danger. Dr. Watson thinks that, in most cases, it is really a compensatory change, and one conservative of life. Its relation to disease depends much on its seat. In the voluntary muscles it is generally harmless, whilst in the involuntary it is connected with disease, sometimes as a cause, oftener as a consequence, sometimes as both cause and consequence. The production of hypertrophy appears connected,—1st, with certain localities, as in the case of bronchocele—2d, with certain congenital or acquired conditions of the body; thus, in the strumous diathesis, we have hypertrophy of the upper lip, and of the extremities of the long bones—3d, with certain habits of life, as full diet with inactivity of the body; and 4th, with the removal of certain parts of the body, as of the testicles in man and the ovaries in the female.

The Lecturer next considers *atrophy*, a condition in which parts become smaller than natural without any other alteration of tissue. This seems to depend on a diminution of the nutritive function. The alterations caused by atrophy are sometimes perfectly consistent with health. There are parts of the body destined only for a temporary purpose, and on the cessation of their especial function they dwindle and disappear. We have instances of this in the thymus gland—the supra-renal capsules—and the parts connected with the fœtal circulation. Atrophy sometimes displays itself even in fœtal life. Hare-lip, fissures of the palate, certain malformations of the heart, are instances of intra-uterine atrophy. We would consider these rather as arrests of development, than instances of atrophy. Atrophy, considered as a morbid change, is conspicuous in the muscular system. We see it in the voluntary muscles, when a limb remains a long time in a state of inaction, whether from palsy of such limb—from pain connected with disease of a joint—or from any other cause. The atrophy in most cases seems to depend on a deficient supply of arterial blood.

Some will have it that, with respect to paralysed limbs, the change in the innervation of the part tends to occasion its atrophy.—Dr. W. thinks that this can only exercise an indirect influence by reducing the supply of healthy arterial blood. *Pressure* on the large arterial trunks, or on the capillaries, so as to lessen, without completely preventing, the supply of blood, will produce atrophy. *Chronic inflammation* will sometimes produce wasting of the parts it has occupied. Various diseases, interfering with the due performance of the digestive functions—or diminishing the quantity, and impairing the quality, of the nutrient fluid, produce more or less of general atrophy.

Various parts of the body are liable to be changed in *consistence.* They may become harder than natural (*induration,*) or softer (*softening—ramollissement.*) Induration of an organ may arise without any other alteration of tissue from overfulness of its blood vessels, as in the case of the lungs or liver. Induration of the hollow organs, or of cellular parts, will arise (without any change of texture) from undue accumulation of fluids within them, as of bile in the gall-bladder, urine in its receptacle, of gasses in the stomach and intestines, and lastly of serosity in the cellular tissue (œdema.) It may also be the consequence of hypertrophy. Induration of an organ may also arise from the *ex*pression of its fluid, and the *compression* of its solid parts. This is well seen in the lung when it has been flattened against the vertebral column by effusion into the pleura. Blood, —or fluids separated from the blood—may fill and obliterate the natural interstices, and, by concreting, tend to solidify and harden the part—a good instance of this is *hepatisation* of the lung. Unnatural induration may also arise from the deposition or growth of irregular masses of matter within the body, differing from any of the solids or fluids entering into its healthy composition—the varieties of tubercle, cancer, and other forms of disease termed malignant, fall under this head. The opposite condition to this is *softening,* a change to which almost every tissue in the body is liable. We see it affect the brain and spinal chord, the cellular tissue, the muscles, mucous membranes; and even the bones are liable to it, as in the disease known by the name of *mollities ossium.* With respect to the causes of *softening,* it may be said to proceed from inflammation, from disease of the arteries of the part, from insufficient sustenance—from altered qualities of the blood—the author considers, in a word, that softening may ultimately be resolved, like atrophy, into suspended or defective nutrition. The next change considered is that constituting what has been called the *transformation of tissues,* as when in the proper place of one natural tissue we sometimes find another, which last is thus *un*natural in regard to its situation, but natural in all other respects. In most cases the tissue that has been changed or displaced is in one of the two following predicaments:—Either its natural function has been for a long time suspended; or it has been accidentally called on to fulfil a purpose for which it was not originally destined; in the former case it gradually approximates towards cellular tissue, which at length is all that remains; in the latter, it assumes the characters of that other tissue, whose office it has taken up. This we see is in accordance with what we know of the laws that govern the progressive development of the human body. In the embryo all the tissues commence by being cellular, and they only assume other forms and

characters, each on the condition of its fulfilling some special purpose. This explains why there should be a tendency in each tissue to revert towards its primitive state, that of cellular tissue. This law pretty nearly coincides with that which regulates the hypertrophy and atrophy of parts. Again, if the nature of the original function determines, in the first instance, the nature of the tissue, we have less difficulty in conceiving how the nature of a new and accidental function imposed upon a tissue may determine the kind of transformation it shall suffer—thus, if a muscle comes to lie around and invest an unreduced joint after a dislocation, assuming the uses of those tissues which naturally inclose the joint, it becomes converted into fibrous or ligamentous tissue. There is a limit, however, to this transformation. Nerve, muscle, and gland are convertible into other tissues, but other tissues are not convertible into them. Cartilage may become bone, but never mucous membrane; mucous membrane may be converted into skin, and vice versâ; but neither into serous membrane. We have seen that special transformations take place when a tissue falls into disuse, or a new function devolves on it. All transformations, however, cannot be included within these limits. We have ossifications of arteries, of the cartilages of the ribs, and of the larynx. Such changes are said to be the effects of irritation—age, also, has some connexion with them.

The Lecturer next considers the changes of *situation* to which the solid parts of the body are liable. These changes chiefly regard the *viscera*. Thus, in the chest, a whole lung may be displaced, and compressed against the vertebral column by serous or gaseous effusion into the cavity of the pleura. The same causes may dislocate the heart, when they operate on the left side of the thorax. In the abdomen and pelvis the various forms of hernia may be adduced as instances of dislocation. Another instance of this state is that which is called *intus-susception*.

The Lecturer, after considering the morbid changes to which the solids of the body were liable, now comes to consider the morbid alterations of the fluids, especially those of the blood. The absurdity of exclusive *humoralism*, as well as of exclusive solidism, he points out very clearly. No notable alteration can occur in the solids of the body which will not soon affect its fluids in some way; whilst every important change in its fluids must lead to, or proceed from, a corresponding and proportionate modification of its solids.

The animal fluids are—the blood, the fluids that enter the blood, and the fluids that proceed from the blood. Those that enter the blood are of two kinds—1st, those by which it is renewed and enriched; and 2d, those that enter it in order that they may be conveyed out of the body. Thus we know that the deterioration of the first products of nutrition by any cause, as unfit aliment, or impure air, will sensibly modify the blood. Some of the matters also derived from the body itself, and taken into the blood in order to be conveyed away, may directly alter and contaminate the blood; matters, for instance, absorbed from diseased parts of the body;—or matters, which, though harmless whilst only transitory or in minute quantity, become noxious when retained and accumulated in the blood, from faulty or deficient action of the organs destined to eliminate them.

The fluids that *leave* the blood are—1st, those expended in the growth or maintenace of parts; 2, those employed in aid of some definite function of the body, as the saliva, gastric juice, bile, &c.; these may be excessive, deficient, or entirely wanting; 3, those separated from the blood to be excreted, as the urine, cutaneous and bronchial excretion.

The blood itself is subject—1st, to variations in *quantity*, both in respect to the whole system, and to particular parts or organs; 2nd, in the proportions between its several proximate constituents; and 3, to great changes in its chemical composition, and consequently in its physical qualities, as seems to be the case in sea-scurvy, purpura, &c.

It has been stated that the blood may undergo alterations in *quantity*—it may be too abundant throughout the body, or only in certain parts of the body—this constitutes general or local *plethora;* sometimes called general or local *congestions*—*hyperæmia* expresses the same state. Inflammation, hæmorrhage, dropsy, all imply a previous condition of congestion. When the growth of the body has been completed, blood may be made in greater abundance than the wants of the body require. Full living, and a sedentary life, are likely to produce plethora. In such persons, the entire vascular system is preternaturally distended. When in these persons inflammation arises, it requires active treatment. Here the blood is not only more abundant in quantity, but it is also richer in fibrin, and in red particles.

The opposite to this state of general plethora is *anæmia*—or, in plain English phrase, poverty of blood. This state may be produced by repeated abstractions of blood; by impoverished food; it is also characteristic of *chlorosis*. Various forms of hæmorrhages are, also capable of causing it. When under such circumstances blood is drawn from a vein, we observe a small clot floating in an abundance of serum. It is curious that the red particles require more time for their restoration than the other constituents of the blood; the preparations of iron, and the respiration of pure air have signal efficacy in restoring them.

We have seen that in general plethora, there is local plethora of every organ. Strictly speaking, however, local plethora should be predicated only of a part that contains more than its share of red blood. We may, however, have local plethora without general plethora; in fact, local determinations of blood are extremely common in persons in whom the mass of blood, and the proportion of its nutritive particles, have been much diminished by disease. This remarkable tendency, under such circumstances, to an unequal distribution of the blood in the capillaries, our author thus explains. A due supply of healthy blood is requisite for the due performance of the functions of the brain and nerves, and when this supply is defective, those functions become disturbed, and in their turn disturb the functions of the solids and derange the balance of the circulation. Persons endowed with great sensibility of the nervous system are known to be very liable to partial and irregular congestions of blood. This local congestion may be produced, on the surface of the body at least, by various means; by frictions, and by mechanical or chemical means. Now the congestion thus occasioned is not inflammation, but it is the first step towards it. The congestion thus produced is said to be sthenic or active. The arteries, probably, have more to do with it, in the first

instance, than the veins. It is in the capilliaries which are distinct from and interposed between the minute arteries and the veins that further changes are wrought, when the process advances a stage beyond mere local plethora.

For the purpose of illustrating the subject of active congestion and the various phenomena accompanying it, he describes the scene which presents itself, when the web of a frog's foot is looked at through a good microscope. (The description is taken chiefly from Kaltenbrunner.) After terminating this account of the phenomena accompanying active congestion, he observes that, as this state is the parent of inflammation, so it sometimes causes hæmorrhage, and is relieved by it. One obvious mode of remedying this congestion is the mechanical abstraction of blood from the loaded part. This, however, may sometimes do harm. Irritability of the nervous system may be aggravated by bleeding; and in proportion as the nervous functions are irregularly performed, the tendency to unequal distribution of blood in the capillary vessels increases. Besides active congestion, such as now spoken of, we have another form of this state, called *mechanical congestion*; in this form the veins alone are concerned. This sort of congestion may be purely local, as when confined to a limb, when the principal venous trunk belonging to that limb is compressed. If there be disease of the liver, such as to prevent a free passage of the blood through that organ, congestion will take place in all those parts of the capillary system from which the blood is conveyed by the veins that ultimately concur to form the vena portæ. There is another form of congestion, differing both from active and mechanical congestion; in this form the capillaries become loaded, and the course of the blood in them is sluggish without any increased velocity of the blood in the arteries, and independently of all mechanical obstacle in the veins. To this form the term *passive* has been applied. Andral calls it asthenic hyperæmia. We see instances of this in persons enfeebled by age, or disease, in whom the lower parts of the legs, the insteps and ankles, and the skin which forms the surface of old scars, are often habitually purplish, or violet-coloured. In these cases, the capillaries appear to have lost their natural elasticity; they readily dilate under the pressure of the blood, which, being thus retarded, accumulates in the part. This state may occur without any previous irritation acting on the part, or any previous active congestion. There is, however, frequent connexion between these contrasted conditions. Passive often succeeds active congestion: the vessels become dilated under the force of the active hyperæmia, and, the irritation ceasing, they do not at once recover their tone, but remain passively distended. In the production of *active* congestion the arteries are chiefly concerned; in *mechanical* congestion, the veins, and in *passive* congestion the capillaries. There is every reason for believing that the internal parts are equally liable as the external to passive congestion. Thus the lungs are very subject to engorgement of their capillary vessels. This state is most effectually relieved by tonics and stimulants. One law has been ascertained with respect to active and passive congestion; viz.—that it is *apt to recur*.

Passive and *mechanical* congestion often exist *together*. If the capillaries of a part are much enfeebled, the mechanical effect of the gravity

of the blood may suffice to bring them into a state of congestion. This explains the occurrence of a gorged condition of the posterior portion of the lungs (evinced by symptoms during life) in persons who have had no previous pulmonary disease, but have been confined for a long time to the supine position. Mechanical congestion, when it reaches a certain point, is the source of hæmorrhage, and the almost constant precursor and immediate cause of several dropsical accumulations. Blood, poor in its materials, though not deficient in its quantity, may also occasion dropsies.

Our author now comes to consider the *different modes of dying*, that is, the ways by which the vital functions of the body are extinguished. The investigation of the different modes of dying resolves itself into an investigation of the different ways in which the circulation of the blood may be brought to a stand. The brain, lungs and heart are the three grand vital organs; hence the functions they perform are called vital functions. The functions of any of the three being arrested, the functions of the other two are also speedily extinguished. But the phenomena of dying vary very much, according as the interruption begins in the one or the other of these organs.

That the heart may continue to propel the current of the blood, two things are indispensable: 1st, a certain power of contraction, and 2, a certain quantity of blood to stimulate the heart. Thus there are two ways in which death may be said to begin at the heart. The respiration is entirely subservient to the circulation of the blood. The heart and lungs respond to each other. The respiratory apparatus is added in order to ventilate the blood. To this purpose two things are requisite, 1st, the ingress and egress of air; and 2, alternating movements of the chest to cause such ingress and egress. These movements are essentially involuntary, and depend on a certain state of the medulla oblongata. The respiration depends then on the nervous system—on the other hand, the action of the heart is not directly or necessarily dependent on any constant nervous influence; it goes on in acephalous fœtuses. But though the nervous influence is not necessary to the movements of the heart—further than as it is necessary to the respiration, and the introduction of nutriment, it is known that very sudden or extensive injury or shock to the nervous system may paralyse the heart. There are, then, certain states of the brain and nerves which, without directly affecting the heart, bring the motions of respiration to a pause; and there are certain states of the brain and nerves, which act directly on the heart and arrest its play. That is, there are two different ways in which death may be said to begin at the head. Sudden death caused by a want of the due supply of blood to the heart is called *death by anæmia*. The best instances of this are persons dying of sudden and profuse hæmorrhage. Another form of death, beginning at the heart, is that wherein there is a deficiency of contractile power in the heart. This is *death by asthenia*. Some kinds of poison may produce this. Sir Benjamin Brodie ascertained, upon examining the chest after death occasioned by the *upas antiar*, that the heart was not empty, but full, there being purple blood in its right, and scarlet blood in its left cavities; so that the action of the heart does not cease from defect of stimulus, but from a loss

of contractile power. The state of suspended animation common to both these forms is expressed by the term *syncope*.

In death by *anæmia* and death by *asthenia* this difference may be noted —in death by anæmia the suspension of the functions of the nervous system is caused by lack of blood to the brain from the heart; whereas, in sudden death by asthenia, the nervous system is first affected, and, through it, consecutively the heart. Now, with respect to the manner in which death is produced by the suspension of the respiratory function—that is, by want of due arterialization of the blood—there are two perfectly distinct modes in which this cause of death may happen.

1st. When the access of air to the lungs is suddenly denied by some direct obstacle to its entrance—this is death by *asphyxia*.)

2. When the muscular actions required for breathing cease in consequence of *insensibility*, caused by disease or injury of the brain—(this is death by *coma*.)

The author adverts here to the improper use of the term *asphyxia*, as applied to death resulting from the non-arterialization of the venous blood. He would prefer the term *apnœa*. The internal changes corresponding with and causing the symptoms arising from the privation of air, all proceed from the prevention of the chemical alteration naturally produced in the blood, in the capillary vessels of the lungs. The venous blood now circulation becomes inadequate to sustain the functions of the several organs it now reaches. Sudden death by apnœa is not often the result of disease, it may be produced by a spasmodic closure of the rima glottidis, or by fracture or dislocation of the upper cervical vertebræ. Death by apnœa in disease is extremely common; as in œdema of the glottis and of the submucous tissue of the larynx; false membranes in the windpipe and bronchi may cause it; this kind of death may occur in pneumonia and in pulmonary apoplexy; in bronchitis, phthisis, and effusion into the pleuræ, &c. Death by *coma* is deserving of great interest. Certain diseases of the brain produce insensibility to outward impressions; the respiration becomes slow and stertorous; at length, the movements of the thorax fail—the chest ceases to expand—the blood is no longer aërated—and thenceforward the same internal changes occur as in death by apnœa.

Death by coma may sometimes be effectually obviated by a mechanical expedient. The circulation ceases because the respiration ceases, whilst the respiration ceases from the suspension of the nervous power; hence, if the nervous functions are within the verge of recovery, organic life may be sustained by *artificial* respiration, until the insensibility has passed away.

The *causes* of disease next come under consideration. Of these he gives the usual division, viz. into predisposing, exciting and proximate. He here cautions the student against confounding the terms *predisposition* and *predisposing cause*. The predisposition is a certain state of the body—the predisposing cause is what produces that state. Our author having enumerated the principal sources of disease, those, for instance, depending on the atmosphere, on diet and regimen, &c. he next inquires more nearly into the nature and mode of operation of several of them, and proceeds, in the first place, to the consideration of *heat* and *cold*, as external agencies capable of producing disease. The range of atmospheric temperature

compatible with human life is very considerable. Under the burning sunshine of the Tropics, and amid the profound frost of the Polar Regions, we alike find human dwellers. In some parts of India the temperature ranges for a long time together from 80° to 100°, and even 110° of Fahrenheit: sometimes it is said to reach to 120°—these tropical climates are thickly peopled. In the Arctic countries, on the other hand, where the sun appears above the horizon for a short portion of the year only, and where the thermometer sinks to 40° or 50° below Zero, we find inhabitants indeed, but they are very few and thinly scattered. But, *for a short time*—and *under certain circumstances*—man is capable of enduring a very much higher degree of heat than the open and general atmosphere ever attains even in the hottest portions of the earth. Whether he could continue to exist, even for a little while, under a much more intense cold than ever occurs naturally on the surface of the globe, is more questionable. It has been ascertained, by repeated experiments, that the human body is capable of sustaining very high degrees of temperature, amounting even to 240° or 260°, without detriment or much inconvenience. With respect to the effects upon the human frame of a high, yet less excessive temperature of the air, we may set down that one very constant effect of heat is that of stimulating the *organic functions* of the body; the action of the heat is much accelerated. We have evidence to the same effect in the annual changes that take place in the vegetable kingdom at a given place, the Summer renewing its foliage, the Winter repressing it. The same observation applies to those functions which animals possess in common with plants. Towards the Poles both man and the lower animals are smaller than at the Equator. On the other hand, considerable heat, when applied for some time together, has a sedative influence on the *animal functions*, *i. e.* upon the nervous system; causing langour and lassitude, a disinclination to exertion, both mental and bodily. There are some forms of disease distinctly traceable to heat as their cause. The effect of hot weather in promoting the cutaneous perspiration is notorious. The same influence renders the hepatic function more active. Dr. James Johnson first distinctly pointed out the sympathy or consent that obtains between the liver and the skin, under varying conditions of external warmth. Experience proves that a high atmospheric temperature, continued for some time, has a marked influence on the liver, increasing the quantity of bile that is secreted, and altering its sensible qualities: and this disturbance of function is often followed by inflammation of the gland itself. In this country we witness almost annually the effects of sultry weather in those attacks of vomiting and diarrhœa which are so common towards the latter end of Summer, and in Autumn when the weather has been unusually hot. The lecturer here happily illustrates the distinction between predisposing and exciting causes. It is well known that a secreting organ is never so apt to be affected by any exciting cause of inflammation, as when the process of secretion is going on actively. This undue activity of the hepatic function constitutes a predisposition to hepatic inflammation, whilst the hot atmosphere, which produces this predisposition, holds the place of a predisposing cause of the inflammation; but the exciting cause is exposure to cold; one of the most common and best ascertained exciting causes of inflammation in general.

The effects of *cold* are in many respects the direct opposites of the effects

of heat. When its application is continued, it acts as a sedative on the organic functions of both animals and vegetables. This appears from the shrinking of the external parts; the superficial arteries become unable to transmit the blood in the usual quantity through the integuments. One of the earliest effects of intense cold, more especially when combined with great fatigue, is to produce drowsiness. This was strikingly exemplified in what befell Dr. Solander, among the hills of Terra del Fuego. The story is given in Captain Cook's Voyages. In many instances, before this complete torpor comes on, intense cold has a curious effect upon the nervous system, blunting the sensations, and confusing the intellect, giving to the person exposed to it the appearance of one intoxicated.

It has long been a popular, and even a professional axiom, that *sudden vicissitudes* of temperature are dangerous; that *a previous hot state of the body* augments the hurtful effects of cold, whether applied externally or internally. This broad proposition however requires limitation. If the power of evolving heat, which is known to be inherent in the system, be entire and active and persistent—if it have not been weakened by debilitating circumstances—no danger need attend even violent alterations of external temperature. Unusual heat of the body at the time when the cold is applied, so far from implying danger, is really the condition of safety, provided the heat is steady and permanent. We know that the cold affusion has been employed in the hot stage of fever, and especially in scarlet fever, not only with impunity, but with great benefit to the patient. The same holds true when the body has been heated by exercise—provided always, that the cause remains steadily in action, that there is no local disease, and that the body is not fatigued, and fast losing its heat. The more correct statement respecting the application of cold is, that it is dangerous—not when the body is *hot*—but when the body is *cooling after having been heated;* and this principle applies whether the cold be applied externally or internally, to the surface of the body or to the mucous membrane of the stomach. Very many instances are recorded of death taking place after a copious draught of cold water.

Among the circumstances which favour the morbific effects of cold, and relate to the condition of the body itself, is to be included whatever has the effect of weakening the system, and so diminishing its capability of evolving heat, as fasting, evacuations, fatigue, &c. These lessen the vigour of the circulation, and depress the power of generating heat. The power of evolving heat is very feeble in very old persons, and in the newly-born. The bad effects of cold depend partly on the intensity of the sensation it produces—but still more on the duration of that sensation. Cold is more likely, *cæteris paribus*, to prove injurious when it is applied by a wind, or current of air, and also when it is accompanied by moisture. Certain circumstances have been noticed as counteractive of the effects of exposure to cold; as passions engaging a close attention to one object; diminished sensibility, as in maniacs, and the power of habit. *Sleep* is enumerated among the conditions of the body which diminish its power of resisting cold. Now, while we sleep, sensation is in a great measure suspended, and this seems to furnish a contradiction to the principle, that the effect of cold on the health depends upon the strength and duration of the sensation excited by it. This difficulty has been disposed of by

stating that the sleeper who thus suffers really does feel, and is conscious of, the sensation of cold.

Closely connected with the effects of temperature on the health is the influence of the different *seasons*. It is well known that the general health of the community fluctuates with the changing seasons. Pectoral complaints are most apt to commence or grow worse in Winter and Spring; whilst bowel-complaints are most distressing in Summer and Autumn. Among the other states of the atmosphere which may be considered as a cause of disease, *impurity* of the air may be enumerated. It is however as a predisposing influence that impurity operates. It never *generates*, according to the author's belief, continued fever; yet it will most certainly aggravate the symptoms, favour the propagation, and increase the mortality of that and other diseases, in a great degree—impure air, he considers, is a very powerful agent in calling scrofula into action, and in aggravating the strumous diathesis. Among the predisposing causes of disease is classed *hereditary tendency*. To mention some of the diseases which occur in this way, scrofula, gout, mania, and according to some, spasmodic asthma. There can be little doubt that the circumstances of the parents do influence the physical characters of the children: it is matter of daily observation; and one of the best possible illustrations of the fact is to be found in what are called family-likenesses.

The subject of *symptoms* is next discussed. Symptoms he defines to be "every thing or circumstance happening in the body of a sick person, and capable of being perceived by himself or others, which can be made to assist our judgment concerning the seat or nature of his disease, its probable course and termination, or its proper treatment." This definition expresses the three purposes for which the study of the symptoms is cultivated, viz.

1st. To ascertain the nature and seat of the disease, *i. e.* to form the *diagnosis*.

2d. To enable us to foretell the probable issue of the disease, or to frame the *prognosis*.

3d. To direct the treatment.

Notwithstanding the great importance of a correct diagnosis, the author justly observes that almost all we know concerning the proper treatment of the sick is *originally* derived from observation, *not* of the *nature of diseases*, but of the *effects of remedies*. There have been various divisions of symptoms. Those symptoms or combinations of symptoms which distinguish the place and nature of a disease, are called *signs of disease*; those which teach us what to do, are called *indications of treatment*. A difference has been pointed out between *symptoms* and *signs*. Signs are deduced from symptoms by arranging and comparing them, and noticing the circumstances under which they occur. Symptoms are obvious to all persons alike—to the nurse as well as to the physician; signs, for the most part, are such to medical eyes only. There are other general divisions of symptoms. Some are called *direct*, some *indirect* symptoms. Direct symptoms lead to the very part affected; indirect symptoms are such as, "declare themselves through the medium of some other parts, or through the medium of the constitution at large." With respect to the symptoms which consist of *morbid* changes, they may all be classed under

three heads:—1. Uneasy, unnatural, or impaired *sensations:* 2. Disordered, or impeded *functions:* and 3. Alterations of structure or of appearance; changes of *sensible qualities.* When these last come within the direct cognizance of our senses, they are called *physical signs.* Of all the uneasy sensations *pain* is the most important. On finding that pain or uneasiness is complained of in any part or organ, our next business should be to inquire whether the *functions* of that part or organ are disturbed or suspended. The functions of the brain and nerves of the heart and blood-vessels—of the respiratory apparatus—and of the digestive organs—are all of vital consequence.

The symptoms drawn from the functions belonging to the *circulation* are of the utmost importance. Every one knows how much value is attached to the quality of the pulse. The qualities most attended to in the pulse are its frequency, regularity, fulness, and force.

Our author next considers the important subject of *Inflammation*; its morbid and salutary effects, together with its local and constitutional phenomena, as it occurs in external parts. After examining the symptoms of inflammation, as Pain, Heat, Redness, and Swelling, and the different conditions on which they depend, he then considers the state of the capillaries, and of the blood in a part inflamed. Much has been learned on these points by patient and minute observation with the microscope, and by reasoning on the facts thus brought to light. In order to comprehend the minute phenomena of inflammation, it is necessary to have a clear conception of the constituent elements of the blood, and of the principal changes it is liable to undergo. The blood is known to consist of red particles, or globules, and of a transparent colourless fluid, called lymph or liquor sanguinis. The liquor sanguinis separates by coagulation into two parts, serum and fibrin, the latter having previously existed in solution in the liquor sanguinis. From the experiments and observations of Kaltenbrunner it appears that various stimulant substances, mechanical or chemical, when applied to the web of a frog's foot, will produce irregular disturbances in the circulation, which irregular disturbances are not to be confounded with true congestion; nor are they to be confounded with the phenomena of *inflammation*, which are always preceded by those of true congestion. Kaltenbrunner found, also, that (just as in congestion,) a certain interval of time generally occurred between the application of the exciting cause and the apparent development of the inflammation. This, our author remarks, accords with what we observe to be the case in respect to local injuries, and to those local internal inflammation so apt to be produced by exposure to cold. There is a pause before the mischief lights up; there is, in fact a period, during which the inflammation seems to be hatching, and it is hence called the period of *incubation.*

On looking then at the web, to which some violence had been done, Kaltenbrunner observed, that, when the period of incubation was over, an afflux of blood took place to the part about to be inflamed; the velocity of the blood in the vessels was greatly increased; the vessels themselves were distended and tense, and therefore disposed to tighten on the blood they contained—the functions of the part, that is to say, the secretion

and absorption of lymph, were interrupted; the blood underwent an evident change—or it failed to undergo the proper changes; its globules stuck together, and the parenchyma of the web became tumefied—this is what constitutes the state of the blood-vessels under *active congestion*, which congestion is just one step short of inflammation. The congestion, now described, increases, until at length the capillary tubes, instead of tightening upon their contents, become dilated; the circulation, at first so rapid, begins to be *delayed* in some of the capillaries; the direction of its motion becomes uncertain; it oscillates, as it were, irregularly in those vessels, and at last stops altogether, the globules cohering in irregular masses, and thus *points of stagnation* are formed. Around these points, beyond their circumference, the circulation remains still very rapid, and the congestion persists. This is *inflammation*—of which the characteristic or pathognomonic feature is the formation of these *points of stagnation*. One early consequence of the stagnation of the blood is, that a portion of it transudes through the sides of the vessels containing it: the serum; or the liquor sanguinis; or even sometimes the blood itself, red particles and all. The effused serum remains, or is absorbed, as serum. The fibrin, when it has so transuded, concretes, and thus the interstices of tissues are filled up, and layers of coagulated lymph are formed on the surface of inflamed parts, constituting false membranes. Microscopic investigation has recently discovered a number of *colourless corpuscles* floating in the liquor sanguinis. These corpuscles, passing into the interstices of the inflamed tissues, or stagnating in its capillaries, suffer remarkable changes, assume a yellow colour, and are thus transformed into globules of *pus*. So that pus is nothing else but altered blood. During the inflammatory state the corpuscles sometimes appear to multiply with great rapidity. Whether the colourless corpuscles be independent of the red globules of the blood; or whether, as some suppose, they are originally derived from the red particles, are questions as yet undecided. In fact most of the events or consequences of inflammation are traceable to the stagnation of the blood in the capillaries, and to the changes which the stagnant blood consequently undergoes.

Our author next considers the various causes which have been assigned by pathologists for the occurrence of the *buffy coat* of the blood. That the formation of this coat depends upon some *vital* change in the blood, appears probable from this—that it will sometimes vary greatly in different portions of blood abstracted at the same bleeding. The explanations that have been offered, however, of the phenomenon, are purely hypothetical. The author dwells the more on this peculiar appearance of the blood from its great importance in determining the nature of various complaints, and in directing our treatment of them. Speaking generally, when a given organ is inflamed, the buffy coat is more marked in proportion to the intensity of the inflammation; when the organ is not known, it is more likely to be of a fibrous or of a serous texture, in proportion as the blood is more decidedly buffed. The appearance of the buffy coat is especially valuable as an indication of treatment in cases concerning which we are in doubt whether they are inflammatory or not. On the other hand, if other symptoms indicate the presence of inflammation, the absence of the buffy coat should not shake us in our opinion. This appearance is not

unfrequently absent in inflammation of the mucous membranes, especially in that of the mucous lining of the bronchi. Buffy blood is not confined to cases of inflammation—it is often found in cases of general plethora, and also in cases of pregnancy.

Buffy blood is no measure of the *danger* of the disease. Nor is the appearance of buff on the blood, taken by itself, a sufficient warrant for abstracting more blood: for the blood will sometimes, in common inflammation, continue to be buffy, long after it has ceased to be useful, or safe to bleed the patient.

Our author coincides with those who object to the word "*terminations*" of inflammation as inappropriate; alleging, that the inflammation does not necessarily cease or terminate whenever these so-called "terminations" happen. Some of them are in fact co-existent states, or successive stages in the progress of the same inflammatory disease. Some have proposed to speak rather of the *local effects* of inflammation; but even this phrase he considers not altogether unobjectionable, for sometimes (though rarely) there are no local effects produced beyond the four symptoms which characterise the inflammation itself—he prefers the expression *events of inflammation*. The events of inflammation are, Resolution—Effusion of serum—Effusion of coagulable lymph, and Suppuration.

According to the most recent observers, pus is altered blood. It is an opaque, smooth, yellowish fluid, of the consistence of cream, and having no smell—such are the characters of healthy pus. It consists of yellowish globules, diffused through a thinner fluid, which resembles in some respects the serum of the blood. "If six or eight ounces of good pus be suffered to stand in a phial, it will separate into two portions; a yellowish matter will sink to the bottom, and there will be a slightly yellow, clear, supernatant fluid, like oil in appearance, but not greasy to the touch." The sediment consists of the globules; which Gendrin supposed to be the red globules of the blood altered; deprived of their coloured envelops, and swollen or enlarged. The opinion, however, now prevalent among pathologists is, that these pus-globules are transmuted "colourless corpuscles"—moreover they are hollow cells. In the generality of cases the formation of pus is preceded by the effusion of coagulable lymph, with or without the effusion of serous fluid; the pus in these cases appears to be poured forth or secreted by the coagulable lymph after it has become organised. Its formation seems to characterize a more advanced stage of inflammation—to denote that the inflammation has been pressed a little beyond the adhesive stage. This is the opinion of both Hunter and Gendrin. The air possesses considerable influence in promoting the suppurative process in preference to the adhesive. In simple pleurisy from exposure to cold, we seldom have any fluids effused, except coagulable lymph and serous fluid. But if the inflammation has been caused by a punctured wound from without, or by laceration of the *pulmonary* pleura by the sharp end of a fractured rid, or by a perforation of the pulmonary pleura by the extension of a vomica in the lung—in all which cases air finds its way into the cavity of the pleura—the true *empyema* results,—pus is formed. So also in pneumonia; at first the inflamed lung is rendered solid by the effusion of coagulable lymph into the air-cells; but if the inflammation persists, the next thing that happens is what is called by Laennec *grey* hepatization—

a puriform infiltration takes the place of the lymph. In general it may be said of surfaces that are open to the air, of tegumentary membranes, that either pus is formed upon them, under inflammation, without any previous effusion of plastic lymph, or the lymph is slight in amount and transient in duration, and presently superseded by a puriform discharge.

A *fifth event* of *inflammation* is *ulceration*. Kaltenbrunner observed the progress of absorption in the inflamed tissues which he examined by the help of the microscope. Independently, however, of these microscopical observations, it is quite evident that absorption goes on, often very actively, during the continuance of inflammation. The effused fluids, or products of inflammation, the serum, the lymph and the pus, are partly taken up again; and not only are these products of inflammation liable to be removed, but the original textures of the body are carried off by absorption. We have a proof of this in the progress that an abscess makes to the nearest surface at which the pus it contains may be discharged.

Many circumstances influence the occurrence and progress of ulceration; and great differences are observable in the different tissues in respect to the facility with which they severally ulcerate. This process is most common in the tegumentary membranes. It occurs frequently in the inner coats of arteries, in cartilages and in bones; whilst it is rare in fibrous tissues of all kinds, in serous membranes, and in the outer coats of arteries. Ulceration may lead to perforation of the alimentary canal—of the air-tubes—of the gall and urinary bladders—of the blood-vessels; and to the fatal escape of the natural contents of these organs. There are three things going on at the same time in an ulcerated surface; 1, effusion of plastic lymph by which granulations are formed—2, suppuration, and 3, absorption.

The next event of inflammation noticed by our author is *mortification*. This, with respect to internal parts, occurs more frequently in some than in others. It is frequent in cellular tissue; and in the mucous and submucous tissues of the alimentary canal; in the throat, for example, in cynanche maligna; and in the glandular parts of the intestines in fever. It seldom affects the other mucous systems—those which belong to the air-passages and the urinary organs. It occurs sometimes, but not very often, in the substance of the lungs—seldom is serous and fibrous tissues. The occurrence of mortification depends on various causes and conditions—sometimes on the mere intensity of the inflammation—whatever tends to enfeeble the circulation in the part affected, or in the system at large—tends to promote it. Mortification may be produced by other causes, as well as by inflammation—the mere cutting off the supply of arterial blood, independently of any inflammation, will cause it. Ossification of the arterial trunks, and consequent stagnation of the blood in them, is the commonest cause of the dry gangrene of old persons—the *gangrena senilis*. The author now comes to consider the constitutional symptoms of inflammation. Inflammation sufficiently extensive to disturb the general system at all, is attended with pyrexia; and the presence of pyrexia, when the part affected is unseen, marks the *nature* of the disease. The most prominent of the symptoms denoting *inflammatory fever* are debility and chilliness, followed by, or alternating with, increased heat of skin; and increased frequency and force, and often *hardness* of the pulse, with

considerable derangement of most of the natural functions of the body. There is generally head-ache and confusion of thought, languor, thirst, loss of appetite, a furred or white tongue. This febrile condition generally *succeeds* the manifestation of the local symptoms of the inflammation, and should then be considered as the *effect* of the inflammation.

When inflammation, external or internal, has gone on to the formation of pus, that event is marked by the supervention of peculiar symptoms; and the character of the fever is changed. The *commencement* of suppuration is often marked by rigors; and its continuance by hectic fever. The leading symptoms of *hectic* fever are an abiding frequency of pulse; alternations of chilliness with heat and flushing, followed by perspiration; a gradual wasting of the body, and progressive debility.

With respect to hectic, considered as an indirect symptom that suppuration has succeeded to inflammation, and is still going on, we may notice the strong contrast it presents, in many particulars, to the *inflammatory* fever that attends the earlier stages of inflammation. The pulse loses much or all its *hardness* and strength; but it remains permanently more frequent than the pulse of health; the appetite returns in a great measure; the thirst abates; tongue becomes clean and moist, and towards the end is sometimes unnaturally red, or speckled with apthæ—face usually pale; but during the exacerbations it is partially flushed, and very often a characteristic red spot appears on either cheek. Emaciation, with various minor changes marking the want of proper nourishment.

The notion that hectic fever resulted from the re-absorption of pus into the blood, was at one time very generally entertained; but there are many facts opposed to this opinion. Considerable collections of matter frequently disappear, without occasioning the slightest approach to hectic. Several facts go to prove that hectic is not simply a consequence of the absorption of pus into the blood. It was the opinion both of Hunter and of Abernethy, that sympathetic hectic fever is a *teased* action of the system, endeavouring to throw off what annoys it; the cause of irritation being removed, it ceases forthwith. That there is such a thing a *idiopathic* hectic, hectic unconnected with suppuration any where, cannot be doubted. A form of fever not to be distinguished from hectic, is often seen to occur in mothers who have suckled their infants too long; it is seen sometimes in newly-married husbands; and likewise in persons labouring under diabetes. What is common to all these cases is, that there is an habitual drain upon the system beyond what the nutriment taken into it can supply and counterbalance. It is certain too that hectic fever sometimes happens in phthisis, not only before there has been any expectoration of puriform matter, but prior even to the softening and suppuration of a single tubercle. The fever attending mortification as an event of inflammation, generally puts on the typhoid form; it is characterised by sinking of the pulse, shrunken features, coldness and clamminess of the skin, a dry and black tongue, low muttering delirium or stupor, tremors of the voluntary muscles, with spasmodic startings of their tendons, and insensibility to the passage of the fæces and urine. One circumstance sometimes indicating the supervention of internal mortification is sudden cessation of pain.

The author having now concluded his remarks on the local and constitutional events of inflammation, next proceeds to consider the modifi-

cations of inflammation, according as it affects the *different tissues* of the body.

When inflammation attacks the *cellular tissue*, there is a strong tendency to form circumscribed abscesses; the extension of the suppuration is prevented by a wall of lymph built up around it. The adhesive inflammation sets bounds to the suppurative. When no such boundary is set up, but the inflammation spreads, we have what is called, *diffused inflammation of the cellular membrane.*

The substance of the *glands and solid viscera* suffers changes similar to those observed in the cellular tissue. The cellular tissue is liable to be rendered thick by *chronic* inflammation, as well in the parenchyma of organs, as where it is spread out beneath the skin, or beneath serous and mucous membranes. Chronic induration and thickening of the cellular tissue composing Glissons's capsule, is no unfrequent result of slow inflammation, producing that particular change of the liver called *cirrhose*, the essence of which is atrophy of its lobules from compression of its nutrient arteries.

The inflammation of *serous membranes* is characterized by sharp pain; by hardness of pulse and buffy blood; by its tendency to spread; by the effusion of serum and of coagulable lymph; and sometimes (when air is admitted,) by the effusion of pus. *Adhesive inflammation* occurs in this tissue. *Ulceration* commencing in a serous membrane is very uncommon, as is also mortification.

The *synovial membranes* have a strong analogy to the serous. They are, however, less liable to inflammation than the serous—they seldom throw out coagulable lymph, and therefore adhesion of their opposite surfaces is uncommon. Inflammation of the synovial membrane speedily leads to a *serous effusion* into the joint; which often, especially in rheumatism, is as speedily taken up again.

When the *tegumentary membranes* (the skin) are inflamed superficially the inflammation is characterised by a diffused red blush only, which may be banished for a moment by pressure with the finger,—it terminates speedily in resolution, the only consequence of the inflammation being the removal of the cuticle in small branny fragments—*desquamation.* The superficial inflammation is called *erythema.*

Inflammation of the *internal* tegumentary membranes,—of the three internal surfaces which communicate with air, and are clothed with *mucous membrane*, is very interesting. The first peculiarity which we shall notice in them is their indisposition to adhesive inflammation—the wisdom and beauty of this provision are obvious. Inflamed mucous membrane may throw out serous fluid—viscid mucus—pus, or blood. Inflammation of these membranes, however, is sometimes attended with the exudation of something very like coaguable lymph. The tracheal, bronchial, and pulmonary mucous membrane, the œsophageal, the intestinal, and that which lines the uterus, are all more or less subject to the formation of adventitious membranes under inflammation. These membranous exudations never become organized. They appear to consist of inspissated and altered mucus, and consist, in a great measure, of albumen.

Dr. Watson having now considered the phenomena of inflammation, local and general; its symptoms, and its events; and the intimation of

those events afforded by the state of the system at large; having surveyed also the principal tissues of the body, and observed the modifications and peculiarities to which the process of inflammation is liable, according to the tissue affected, next proceeds to consider certain *varieties* of inflammation, viz. the acute and chronic; latent and specific, scrofulous, &c. In his account of the origin of tubercles; of the forms they assume; of the phenomena attending their enlargement, and subsequent softening, he is a close follower of Dr. Carswell.

The question has been much discussed whether the deposition of tubercular matter be not an *event* of inflammation—in Dr. Watson's opinion there is not a shadow of evidence to show that the deposit of tubercular matter is always and necessarily preceded by inflammation. Still he admits that an undoubted *connexion* obtains between the occurrence of inflammation and the occurrence of tubercles. Tubercles will cause inflammation, and inflammation will determine the development of tubercles. The enlarging tubercles excite inflammation in the surrounding textures by the pressure they exert on them, and probably in other ways; the inflammation lit up is usually of the scrofulous kind; it is slow, partial, and easily *quieted* by treatment, though scarcely to be *cured*. On the other hand, there are good reasons for thinking that, in a person having the scrofulous diathesis, the occurrence of inflammation within the chest may rouse that previously dormant tendency into action, and become the exciting cause of the separation of tubercular matter from the blood. The connexion between tubercles and inflammation is shown also by their occurrence in the substance of false membranes.

We now pass on to the *Treatment of Inflammation*, and to the remedies recommended by the author; after pointing out the advantages of blood-letting, and purging, he next proceeds to consider the use of *mercury*; on the employment of which, he makes some excellent practical remarks.

According to Dr. Watson, the great *remedial* property of mercury is that of stopping, controlling, or altogether preventing the effusion of coagulable lymph. Thus it is chiefly useful in common adhesive inflammation, as an auxiliary, however, to blood-letting, not as a substitute for it. On the other hand, it is likely to do harm in those cases, "where the morbid action approximates to its own action,"—in cases of erysipelatous inflammation having a disposition to gangrene; in scrofulous diseases; in inflammatory diseases attended with general debility, and an irritable condition of the nervous system. When we have to contend with acute inflammation, and desire to arrest the deposition of coagulable lymph, our object is, after premising the necessary bleeding, to bring the system as speedily as possible under the specific influence of mercury. Now this is best effected by giving some form of mercury in equal and repeated doses, by the mouth. For urgent cases, calomel is the best form of mercury; two or three grains, given every four or six hours, will generally suffice to touch the gums in 36 or 48 hours. If it should act as a purgative, add a little opium. Previous bleeding renders the body more readily susceptible of the influence of mercury. Considerable caution is required in the employment of mercury in consequence of certain idiosyncracies which are found to exist in different individuals. Some persons are found to be extremely

susceptible to the influence of mercury; in them, very small quantities of mercury are found to act as a violent poison, a single dose producing in them very severe salivation, and very distressing effects on their mouth. For the relief of this latter annoyance, Dr. Watson recommends the following treatment. If there be much external swelling, treat the case as one of *local inflammation:* Apply eight or ten leeches beneath the edges of the jaw-bones, and wrap a soft poultice round the neck, into which the orifices made by the leeches may bleed—in nine cases out of ten this will afford the utmost relief. Pure tannin, moistened and smeared upon the spongy gums, is remarkably efficacious in rendering them firmer and more comfortable. When the flow of saliva and the soreness of the gums form the chief part of the grievance, the Doctor has found nothing more generally useful than a gargle made of brandy and water. An observation made by the author in this place is well worth remembering, as being of practical value. He mentions an instance of a very fashionable and successful physician, now dead, who used sometimes to say, when he met others of his brethren in consultation, "It is all very well to speculate about the exact situation, and the precise nature of the disorder, but the question with me is, what is good for this, that, or t'other thing." A wise physician will seek to combine with an accurate knowledge of disease those practical expedients and minor appliances which are picked up by casual experience, and which could never have been reasoned out.

Mercury is of great use also in *chronic* inflammation. The treatment, by mercury, however, should *keep pace* with the disease. When textures have been slowly altered by a gradual deposition of coagulable lymph, little is to be gained by rapidly salivating the patient. The lymph, if it can be suppressed at all, must be *gradually* taken up again: and mercury, given with the view of promoting its absorption, must be slowly and gradually introduced into the system. The greatest caution is necessary in the exhibition of mercury in scrofulous inflammations.

Another remedy employed for the relief of acute inflammation is Antimony. This substance, according to the author's experience, is admirably suited to cases of active inflammation, in which mercury would either be not so useful, or could not be brought to bear. It is in inflammation of the mucous membrane of the air-passages that antimony is so signally beneficial. It does not seem to be nearly so valuable a remedy as mercury, when serous membranes are inflamed.

There is another drug much employed in the treatment of inflammation, and that is opium. The employment of a full dose of opium after a full and effective bleeding has been found very beneficial; it is said to possess the power of preventing the rekindling of the inflammation which is apt to result from irritation of the nervous system—a kind of irritation, which the copious abstraction of blood is calculated to produce. The opium soothes this irritability; and when given for this purpose, it must be given in full doses. This remedy, however, requires considerable discrimination in its employment. Where there is active inflammation within the cranium, its propriety is very questionable. It is not devoid of danger in pectoral complaints. In inflammatory diseases which tend to produce death by *coma* or *dpnœa*, great caution is necessary in its use. If there be

any unnatural duskiness of the face, if ever so slight a tinge of purple mingles itself with the red colour of the lips, opium should not be employed. These appearances show that the blood is but imperfectly arterialised, and imperfect arterialisation of the blood conduces to the state of coma. It is in cases where the tendency is toward death by *asthenia*, that the use of opium, as a remedy for inflammation, is most serviceable. It has an excellent effect often, after free bleeding, in cases of peritonitis and of enteritis; it seems to quiet the nerves—sustains the faltering action of the heart—and keeps the inflamed parts at rest.

Our author next proceeds to the consideration of *Hæmorrhage*, and this form of disease he considers only as it falls under the cognizance of the physician. Hæmorrhage, when it takes place from the unbroken surfaces of organs, without any appreciable lesion of arteries, veins or capillaries, is said to occur by *exhalation*. In this way most of those varieties of hæmorrhage which come before the physician, take place. There are several persons who are subject, during the greater part of their lives, to discharges of blood, which happen again and again, commonly at regular intervals, without any perceptible detriment to the general health, independently of any obvious exciting cause: these are called *habitual hæmorrhages*. Again, there are certain forms of hæmorrhage not habitual, which may be denominated *idiopathic*, in as much as they are apt to arise without any perceptible connexion with antecedent local disease. Two forms have been noticed of idiopathic hæmorrhage; viz. *active* and *passive* hæmorrhage. Active hæmorrhage is preceded by active congestion, and therefore is akin to inflammation. Passive hæmorrhage often occurs without any apparent previous congestion of any kind—this has been ascribed to morbid relaxation in the vessels or apertures through which the healthy exhalations are transmitted. A more probable hypothesis is, that such hæmorrhages are to be ascribed to some change in the consistence or composition of the blood. By far the greater number of hæmorrhages by exhalations are *symptomatic;* that is, they result from some previous disease, either in the organ from which the blood proceeds, or in some other organ connected therewith by community or dependence of function. These secondary, or symptomatic hæmorrhages, are preceded by congestion, but for the most part, the congestion is not of the active, but of the mechanical kind, and has more to do with the veins of the part than with the arteries. Thus we have hæmorrhage from the bronchial membrane in consequence of crude tubercular matter in the lungs, filling up a portion of the pulmonary tissue, and obstructing the circulation of the blood through it. Again, we have hæmorrhage into and from the lungs, as a consequence of such disease of the heart as mechanically impedes the return of the blood from the lungs to that organ; a narrowing of the mitral orifice, for example. Hæmorrhage by exhalation occurs most frequently from *mucous* surfaces; as from the mucous membrane lining the nasal cavities; from the pulmonary mucous membranes; from the stomach and bowels; from the urinary organs, and from the uterus. It is not, however, from mucous surfaces alone that hæmorrhages by exhalation may take place; they may occur, but more rarely, from serous membranes.

Our author now directs his attention to the important subject of *Dropsy*, by which he means a collection of serous liquid in one or more of the shut cavities of the body, or in the cellular tissues, or in both; independent of inflammation. Dropsy being said to be rather a symptom of disease, than a disease in itself, it has appeared to some more scientific to treat of the original malady, than of its effect. Dr. Watson disapproves of this view of the matter, for these reasons:—1st. Because it is often uncertain, whilst the patient is still alive, what or where the primary disease may be; and even after death, it frequently happens that no organic disease is discovered sufficient to account for the effusion; in such cases the dropsy is the disease, and the only object of treatment: secondly, dropsy is, to a medical eye, in all cases, something more than an effect or symptom; the imprisoned liquid is often the cause of other symptoms—the removal of the dropsy, it is well known, will restore the patient to comparative comfort.

In dropsy depending on organic disease, two sets of symptoms are to be distinguished; *scil.* those depending on the primary disease, and those depending on the collected fluid. When the cells or cavities which become the seat of dropsical effusion, become distended with the serous fluid, which they habitually secrete, one of these things must have happened; either the quantity of the fluid exhaled must have been increased, the absorption remaining the same; or the absorption must have been diminished, the exhalation continuing the same; or else the exhalation has been increased, whilst the absorption was either lessened, or not proportionally increased. It is only lately that the direct agency of the blood-vessels in the production, as well as in the removal of dropsies, has been recognised. Pathologists, even at the present day, speak of want of energy of the absorbents as a cause of dropsy. But certainly there is no deficiency of absorbing power in persons labouring under dropsy; they are thin and very much emaciated, and, further, they are as susceptible of the action of mercury as other people. According to Dr. Watson's views, as well as those of other pathologists, the function of absorption is shared among the lacteals, lymphatics and *veins*—the lacteals absorbing the chyle from the surface of the alimentary canal, and conveying into the blood the materials of its renovation, while the lymphatics take up and carry into the blood those old and effete portions of the solid constituents of the body, which require to be removed to make way for a fresh deposit; the office of the veins being to imbibe the serous fluid exhaled from the surfaces, membranes, and into the meshes of the cellular tissue. If this view be correct, all difficulty vanishes. Of the two sets of absorbing vessels, the lymphatics and veins, one set may continue to perform its functions, whilst the other fails. We know, from Magendie's experiments, that the *veins* perform a large share in the whole process of absorption. It has also been proved that fluids may and do pass into or out of the veins, in the living body, by mere physical imbibition and transudation through the coats of these vessels; that, when the veins are distended to a certain degree with watery fluid, the entrance of more of the same fluid, through their sides, is prevented; that, when the distention is still greater, the aqueous part of the blood may even pass in the other direction out of the vessel; and that, on the other hand, when the veins are comparatively emp-

ty, the surrounding serous fluid passes readily into them, or in common language, is absorbed. The venous absorption is explicable, therefore, on the principles of *endosmose* and *exosmose*.

According to these views, there can be no difficulty in showing that the chronic forms of the dropsy are attributable, partly, and chiefly, and in many instances entirely, to undue plenitude of the veins, which plenitude is produced, almost always, by some impediment to the free return of the blood towards the heart.

Now, the nearer to the heart this impediment to the free return of the blood is placed, the more extensive is the venous repletion, and consequently the dropsical accumulation. And, if we could plant an obstacle at the very termination of the venous stream, we should dam up the blood in the whole system of veins, and produce general dropsy. Now such an obstacle is frequently placed there by disease. The returning blood is checked at its entrance into the heart; at the confluence of all the veins of the body, where they unite to empty themselves into the right chambers of that organ; and then anasarca of the universal cellular tissue comes on, and water collects in all or most of the great serous cavities. Sometimes we find dilatation of the right chambers of the heart, and the tricuspid valve unequal to its offic of closing the aperture between them—or the retarding cause may be in the left side of the heart, keeping the pulmonary blood-vessels unduly full, and thereby hindering, indirectly, the escape of the blood from the right ventriclo. So that the dropsy may ultimately depend upon some bar to the circulation, placed even at the mouth of the aorta.

Anasarca frequently occurs without any obliteration of brains, and independent of any cardiac disease. This is seen every day in weak chlorotic girls, with bloodless cheeks, and pale lips. Still, even in such cases, there is really a retardation of the venous circulation, not by any mechanical obstacle opposed to the venous circulation, but from the debility of the heart, whose office is to propel the blood onwards with a certain degree of force. In girls of this description the voluntary muscles are weak and flabby, and it is reasonable to presume, that the involuntary muscle, the heart, partakes of the general debility of the muscular system, and becomes incapable of sending the blood forwards with sufficient energy. Andral mentions a certain *cachectic* disposition of the body to be a cause of dropsy; persons may be bled into a dropsy, and starved or weakened into a dropsy. Dropsies, whose cause is traceable to the heart, are called *cardiac* dropsies. Another class of dropsies, connected in a remarkable manner with certain diseased conditions of the kidneys, are styled *renal* dropsies.

Another source of dropsical swelling is excessive *exhalation*. Dropsy, so caused, comes on suddenly, and is termed *acute* or *active*. To understand this class of dropsies, we refer to physiology. Besides the constant exhalation from the inner faces of the shut serous cavities, a large amount of watery fluid is continually thrown out of the system by the skin, the lungs, the bowels, and the kidneys. Now, when the excretion of aqueous fluid from one such surface becomes checked, the exhalation from some other surface becomes augmented. The compensating relation is more conspicuous between some parts than others. It is very evident between

the skin and the kidneys. In warm weather, when the perspiration is abundant, the urine is proportionally scanty and concentrated. But, supposing the exhalation from one surface or organ to be much diminished without a corresponding increase of function in the related organ, or in any excreting organ, communicating with the exterior, then dropsy is very apt to arise. The aqueous fluid thus detained in the blood-vessels, seeks, and at length finds, some unnatural and inward vent, and is poured forth into the cellular tissue, or into the cavities bounded by the serous membranes. Dropsy of one part or organ supervenes suddenly on the rapid disappearance of a watery collection from another part. We not uncommonly see the swollen legs and thighs of an anasarcous patient quickly unload themselves, and resume their natural size and symmetry; but, as his legs are emptying, he becomes drowsy, comatose, apoplectic, and after death, the ventricles of the brain are found distended with fluid.

With respect to the *prognosis* in dropsy this our author very justly remarks depends on its causes and conditions. The anasarca occurring in chlorotic young women is the least dangerous—of the rest, febrile dropsies are more obedient to treatment, and oftener admit of complete recovery, than the passive or chronic. As far as the mere water is concerned in the chronic forms of the disease, cardiac dropsies are more readily dispersed for a time, but are more likely to return than dropsies complicated with renal disease. With respect to the principles of treatment laid down, they are at the same time very simple and very judicious—the first object is to get rid of the preternatural accumulation of watery fluid; the second, to prevent its collecting again: in other words, to remedy the diseased condition which gave rise to the dropsy. *Venæsection* will often reduce the dropsical swelling, more especially in active or febrile anasarca—its use seems to depend on its diminishing the congested state of the venous system—it tends to abate the undue action of the heart; and, by emptying the blood-vessels, it facilitates the re-absorption of the effused fluid and its ultimate expulsion from the system. Blood-letting, however, is not always applicable in cases of dropsical effusion. It is well known to have the effect of impoverishing the blood by robbing it of its fibrine; it also weakens the heart's powers, and thus has a tendency to produce muscular debility of this organ, which we have already seen to be one of the conditions on which the occurrence of dropsical effusion depends. When it is deemed inexpedient to draw blood, our effort should be to empty the vessels indirectly so as to remove from them their more watery parts only; that is, to promote the discharge of watery fluid from one or more of the secreting surfaces of the body; this is done, by acting on the kidneys, on the mucous surface of the alimentary canal, and also on the surface of the skin. Thus, the circumstances which are to determine our choice, require considerable reflection.

Having now followed our author through the first part of his work, in which he lays down the *General Principles of Pathology*, we shall proceed to the analysis of what he has to say on the nature and treatment of particular diseases. We shall commence with the diseases of the *Thorax*.

Catarrh.—We shall commence with this, the commonest of all thoracic complaints—it implies inflammation of the mucous membrane of the air-passages, and receives various names, according to the district of that membrane which it affects; gravedo in the frontal sinuses; coryza in the Schneiderian membrane of the nose; bronchitis in the trachea and lungs. The treatment of the trivial form of this disease is very simple—abstinence from animal food and stimulating liquor—remaining in an equable temperature—gentle aperients, and diaphoretics, include all that is necessary. Dr. Watson mentions the case of a fellow-student of his, who was very liable to catarrhal attacks, which he bore very impatiently. On one occasion, however, almost by accident, he took twenty drops of laudanum, just as one of his colds was beginning to torment him; and he found that the initiatory symptoms ceased. Since this time he had constantly had recourse to the opiate under similar circumstances, and finds himself quite well and comfortable in the course of half an hour after taking it. This, however, will not suit every person—plethoric persons should not adopt it. Dr. C. J. B. Williams has proposed what is called the *dry* plan of cure; it consists merely in abstinence from every kind of drink. No liquid, or next to none, is to be swallowed until the disorder is gone. The principle is that of cutting off the supply of watery materials to the blood. The wants of the system exhaust, from the circulating fluid, all that can be spared for the natural evacuations; and there is nothing left to feed the unnatural secretion from the inflamed mucous membrane. Its capillary vessels cease to be congested; the morbid flux is diverted, and the inflammation starved away. Dr. Williams assures us that a cure may be achieved in this way in forty-eight hours. This plan also has the advantage of not confining the individual to the house. The habitual use of the shower bath is recommended by our author as an excellent *preventive* for those who are liable to colds. Its operation as a prophylactic seems to be this: it inures the surface to a lower temperature than it is likely to be subjected to in any other part of the day. Where a shower-bath cannot be conveniently had, cold sponging will be found very salutary. Inflammation of the membrane lining the air-passages may be, and often is, a very dangerous disorder; *i. e.* it may be both intense and extensive; it may descend in the vesicular texture, and occupy the whole surface of the membrane on one side of the chest; or it may involve the whole lining membrane of both lungs, and then there exists considerable danger. The treatment proper for acute and serious forms of bronchitis is thus stated by our author: if there be much fever, a hard pulse, and great oppression of breathing, and the patient be young, strong and robust, we must bleed him from the arm—this will at all events *relieve* the symptoms; but the bleeding must not be carried to syncope, nor repeated again and again, as a great part of the danger to be apprehended in the advanced period of the disease is, that the patient may not have muscular power enough to disembarrass his air-passages of the phlegm that overloads; to draw a strong breath and to achieve a vigorous cough. Sixteen ounces will be a moderate bleeding at first for an adult; the pulse, however, will afford a better guide for the abstracting of blood, than the local symptoms. *Topical* blood-letting over the surface of the chest or between the scapulæ is also to be recommended. After the bowels have been well cleared out

by calomel and jalap, tartar emetic will be found a valuable medicine in acute cases of bronchitis. The depression which this substance produces is great, but it is temporary, and it is effected without loss of blood. Should symptoms of sinking and debility show themselves, stimulating expectorants must be administered. Carbonate of ammonia is thought to be a specific in such cases; five or six grains of it, given in solution every four or six hours, are often followed by free expectoration and marked improvement. Patients labouring under bronchitis are often harassed by severe cough and want of sleep. The employment of opium in such cases requires great caution indeed. Opium is, as our author well observes, a very ticklish remedy in such cases. He says he has known cases of patients, labouring under extensive bronchitis, who have been put so soundly to sleep by a dose of opium on going to bed that they have never waked again. He lays it down, as a golden rule in such cases, not to give opium—at least in a full dose, so as to force sleep—if you see any venous blood mingling in the general circulation,—if the complexion be dusky, and the lips in any degree blue. The circulation of half-arterialised blood through the brain, is in itself a powerful cause of coma; and, if you add the influence of an opiate, the coma may be made fatal. While the cheeks and lips remain florid, and when the first violence of the disease has abated, an opiate will do capital service. Counter-irritation, by a large blister laid across the chest, often affords sensible relief to the cough and oppressed breathing.

The author remarks how little disposed bronchitic inflammation seems to be to extend itself from the mucous membrane to the neighbouring tissues; and the reason assigned for this by our author is, that this membrane is furnished with a distinct set of blood-vessels, the bronchial arteries, and veins; while the substance of the lungs is supplied by the pulmonary. This perhaps is a mistake on the part of our author; both the mucous membrane, and the substance of the lungs, receive their nutrition from the bronchial arteries.

Pneumonia.—Inflammation of the substance of the lungs we shall now consider. There are three well-marked states of the lung, corresponding to different degrees and periods of its inflammation. The first is that wherein the substance of the lung is gorged with blood, or bloody serum. It is of a dark red colour externally, and crepitates less under pressure than the sound lung. In this state the lung is more easily torn; more, in that respect, like the spleen; and accordingly the term *splenization* of the lung has been given to this stage of its inflammation, as hepatization has to that which succeeds it. If the inflammation continue, the lung undergoes a further alteration; it no longer crepitates under pressure and it sinks in water; its cut surface presents sometimes a uniform red colour; sometimes a slightly mottled appearance, produced by an intermixture of the black matter of the lung and of the interlobular cellular tissue, which is less red than the other parts; the spongy character of the organ is lost; it is evidently solid; and the cut surface very much resembles the cut surface of the liver. Hence the term *hepatization*.

In a degree still further advanced, the pulmonary tissue, dense, solid and impervious to air, as in the last stage, undergoes an alteration of colour;

it presents a reddish yellow, or straw, or drab, or stone colour; or it is of a greyish hue, sometimes mottled with red, or with the black pulmonary matter. It is full, in fact, of puriform matter, which is sometimes so abundant, that it oozes out plentifully, when incisions are made into the lung. The grey pus shows itself on the cut surface in the form of minute drops. This third stage has been called by Laennec *grey hepatization*, or *purulent infiltration;* Andral calls it *grey softening*. The author notices it as a very remarkable circumstance, that inflammation of the lung, going on to suppuration, does not lead to the formation of a circumscribed abscess, as it does when it affects the cellular tissue, or the parenchymatous tissue, in other parts of the body. Abscess of the lung is in fact a very rare thing. Laennec only met five or six cases of it, and Andral but one. Dr. Watson attempts to account for this, and refers it to the influence of the atmospheric air. First, he says, there is an effusion of serum and blood, then of lymph and blood; but the air passing into the surrounding sounder tissue, and mingling for a time even with the inflamed portion itself, causes the suppurative process to supersede the adhesive, and so no wall of circumvallation is formed by the coagulable lymph, as is the case in cellular tissue which is not accessible to the air.

Inflammation of the bronchi constantly accompanies inflammation of the parenchyma. When a single lobe is inflamed, it has been observed that the redness of the mucous membrane existed in those bronchial tubes alone which were distributed to that lobe. There may be bronchitis without pneumonia; but pneumonia without a corresponding extent of bronchitis is perhaps never seen. The majority of the cases of pneumonia are attended also with inflammation of the investing membrane of the lung; there is some pleuritis.

With respect to the treatment of pneumonia recommended by our author, it is precisely that usually adopted by all judicious practitioners; viz. blood-letting, tartar emetic, mercury. Of these he considers blood-letting the chief. In the first place, it extinguishes the inflammation *as* inflammation—in the next place, it has the effect of relieving the particular *function* of the lungs. The more blood is sent to them in excess, the more dyspnœa must there be, the more venous blood passing into the arteries, as well as the more risk of the effusion of lymph, and the obliteration of the cellular texture of the organ. When we bleed, says our author, in pneumonia, we kill two birds (as the phrase is) with one stone. We do that for the lung, which we do for an inflamed eye, when we darken the room, or for an inflamed joint, when we keep it at rest, *i. e.* we do all that we can to spare the exercise of the organ. The abstraction of blood will be effectual, *cæteris paribus*, in proportion as it is *early;* during the first stage—the stage of engorgement—and before the spongy texture of the lung has been obliterated. The patient should be bled in an upright position, by a large orifice and in a full stream; and the bleeding should be continued until some sensible impression is made upon the system: until the *pulse* becomes *softer;* or, if it were contracted, until it becomes *fuller;* until the *sensation* of constriction is abated, and the *dyspnœa* relieved; or until *syncope* appears to be at hand. The patient should be seen always within four or five hours after the first bleeding, that a timely *repetition* of it may take place, if the relief has not been complete, or *permanent*.

Our author likewise recommends the local abstraction of blood from the surface of the chest by cupping-glasses, or by leeches, especially if there be pain.

A time, however, arrives, when bleeding is no longer useful, when even it may exercise an injurious influence on the entire system, by reducing the patient's strength, and disabling him from bringing up and ridding his lungs of the tenacious mucus exhaled by the bronchial membrane. Some medicine is, therefore, wanted to assist the lancet, or to employ alone, when the lancet can do no more; there are two such, viz. *tartarised antimony* and *mercury*—the tartar-emetic being best adapted to the stage of *engorgement*, and the mercurial plan to the second stage—to that of *hepatization*. When the second stage—that of solidification, has arrived, mercury is more worthy of confidence, than tartar-emetic. The object of giving it is to make the gums tender; and this should be done as speedily as possible. By these means the effusion of lymph, tending to spoil the texture of the lung, is arrested; and the lymph already effused begins to be again absorbed. We find that, from the great length we have gone in our analysis of this work; we must close our notice of it here for the present; not however without expressing our unqualified approbation of the manner in which Dr. Watson has performed his task. It cannot of course, be expected that we should give anything like a complete analysis of a work which embraces the entire province of practical medicine. The notices of the work which we have given are amply sufficient to enable our readers to form an accurate estimate of its general character, and to convey to them a just idea of the author's matter and manner. But it is as a book of elementary instruction, that we admire Dr. Watson's work. He is precisely the sort of person to write such a book; whilst he willingly acknowledges the benefits to be derived from the study of pathological anatomy to medical science, he carefully impresses on the mind of the student, that there are very many diseases in which morbid anatomy throws but little or no light on the nature of disease, especially in affections of the fluids and the neuroses—he insists on the great advantages to be obtained from the careful study of symptoms in those instances where it is impossible to connect those symptoms with diseased alterations of structure. In a word, Dr. Watson justly appreciates, and distinctly points out to the student, the great difference between the mere morbid anatomist, and the practical physician.

We now resume our analysis of Dr. Graves's truly interesting and valuable work on Clinical Medicine. We take it up at Lecture XXXII., in which he treats of *Sleeplessness*, as a result of disease. This state is sometimes observed to accompany certain morbid conditions of the system brought on by active disease, or by grief, care, and various other forms of mental disturbance, and frequently resists the most powerful and decided narcotics.

The first case noticed by Dr. Graves, in which this symptom was observed to occur, was a man who was just beginning to recover from jaundice—in jaundice everything denoting an unusual state of the nervous system, whether it be too much or too little sleep, is deserving of attention. In the case alluded to, the jaundice was the result of an attack

of hepatitis, which had been treated with leeches, blisters and mercury, after which, in the course of a few days, the stools became copiously tinged with bile, and his health seemed to improve. At this stage, the dejections being bilious, but the jaundice still remaining, the patient began to exhibit symptoms of restlessness and nervous irritability, and finally became perfectly sleepless. As a preliminary step Dr. Graves determined on evacuating the bowels, and for this purpose prescribed a purgative draught, consisting of five ounces of infusion of senna, half an ounce of sulphate of magnesia, a drachm of tincture of senna, and a scruple of electuary of scammony. His object was to purge briskly, and to give a full narcotic. He remarks that, in all cases of jaundice depending on hepatic derangement, after bilious evacuations have been procured, an active aperient should be prescribed every second or third day, for the space of ten days or a fortnight, with the view of carrying off the remains of the disease, so as to prevent a relapse. Such cases will be much improved by the use of Cheltenham water, taken every day for three or four weeks *after the re-appearance of a bilious tinge in the alvine discharges*.

He here makes a practical remark well deserving of attention with respect to the mode of prescribing purgative mixtures consisting of infusion of senna—he says the quantity of this medicine usually given is much too small; he advises from three to six ounces of it to be given, where the patient's condition will admit of free purging. In chronic cases, too, purgatives should be administered at bed-time, and not, as is usually done, in the morning. In the above case of jaundice, after the purgative had acted well, he prescribed eight minims of black-drop to be taken at a late hour in the evening. With respect to this point, he gives a useful hint as to the time of giving opium to procure sleep; viz. to select the period at which Nature usually brings on sleep, and which varies according to circumstances and the habits of the patient. In dealing with watchfulness in patients labouring under morbid states of the constitution, inquire when the tendency to sleep usually occurs, and administer your narcotic about an hour or two before its occurrence. In these cases, to arrest the sleeplessness completely, one must persevere in the same plan of treatment for some days, until the tendency to sleep at a fixed hour becomes decidedly established.

Another disease in which sleeplessness is a prominent symptom, is delirium tremens. In such cases the Doctor has derived signal benefit from the combination of tartar-emetic and opium. There is one form of nervous irritability frequently observed in persons who are in the habit of drinking freely, but without running into excess, and presenting a shadow of delirium tremens. This state is observed to occur in persons about the middle period of life, who consume a larger quantity of spirits than they are able to bear. Such persons get into a chronic state of disturbed health, loss of appetite, impaired digestion, an irritable state of the nervous system, and watchfulness. To relieve this state Dr. G. recommends a mixture which he has found very beneficial, viz. tincture of columba, quassia, gentian, and bark—of each one ounce; to this is added a grain or even two, of morphia. The dose of this mixture is a tea-spoonful three or four times a day—the best time for taking it is about one hour before meals—the state of the bowels should likewise be attended to.

Another disease in which sleeplessness occurs as a very unmanagable symptom, is fever. The most successful mode of treating this symptom was found to be opiates in the form of injection. Baron Dupuytren was the first who made this important observation, and proved that narcotics applied to the mucous surface of the rectum exercise powerful influence on the nervous system, always equal, and very often superior, to the effect produced by taking them into the stomach.

The delirium and sleeplessness arising from the irritation of blisters is by no means uncommon—it chiefly occurs in the case of children, in whom the cutaneous surface is very irritable. Such cases should be treated with opium, given in small but frequently repeated doses, so as to insure its energetic, but safe action—the child should also be prevented from scratching the blistered surface.

The next kind of sleeplessness to which the Doctor directs attention is that which is frequently met with in persons of a nervous and irritable disposition, in hypochondriacs and hysterical females. In the latter subjects, more especially, antispasmodics and remedies possessing a stimulant effect, are those from which he has found most benefit. Musk, either alone, or combined with assafœtida, were found to be the most successful.

On the subject of applying cold lotions to the shaved scalp in affections of the head occurring in acute diseases, and attended with raving and loss of rest, the author makes some excellent practical remarks. Cold lotions, as they are usually applied, produce effects the very reverse of that intended: and that because they are applied at such long intervals, as to allow the scalp to re-act, and resume its heat. Dr. Graves advises, when we wish to apply cold with effect, that we should have it done by relays of folded linen, wet with any frigorific mixture, and repeatedly applied to the scalp, so as to leave no smoking, or, what is much better, get three or four bladders, put into each a quantity of pounded ice, and apply one over the crown of the head, one on each side, and lay one on the pillow for the back of the head to rest on.

In Lecture XXXIII. Dr. Graves treats of Inflammation and the motor powers, which cause and regulate the circulation, and more especially the capillary circulation. The perusal of this lecture will amply repay the attentive reader—indeed the subject has a bearing so immediate on one of the most important questions in pathology—the nature of inflammation—that it deserves the fullest attention. The chief question is dispute is the degree in which the capillary circulation is influenced by any other agency than the contractile power of the heart and arterial system;—some physiologists maintaining that this alone is sufficient to account for the capillary circulation; and others asserting that it is necessary to admit some supplementary force, which may either assist, retard, or regulate the flow of blood from the arteries into the veins. We must decline any attempt at the analysis of this admirable lecture, and pass on to the next, in which the author treats of certain forms of Gout. He premises some observations on constitutional inflammation in general. There is no proposition, he says, in pathology, better established than that there exist certain constitutional affections capable of generating and modifying local inflam-

matory action; and that local inflammations, depending on a constitutional cause, are subject to very different laws from those which regulate the phenomena of common inflammation. There is one fact connected with local inflammation depending on a constitutional cause not sufficiently noticed, namely, that certain affections of this kind are sometimes remarkably fugitive and transient. Persons are accustomed to regard the process of inflammation, whether common or specific, as one which generally lasts for some days; it occasionally happens, however, that a peculiar diathesis will give rise to local affections having the characters of inflammation which run their course and terminate in the space of a few hours. This observation, which should be borne in mind in the investigation of diseases connected with the general habit, will serve to explain some of the anomalies which strike us occasionally in the study of constitutional maladies. Scrofula is one of those constitutional maladies, which produces inflammations of various parts and tissues of the body, which last but a short time. Gout is another. Persons of a gouty habit are subject to sudden pains or twitches, which last only for a few minutes, or even seconds—these pains are seemingly the result of a momentary congestion. Thus, in various neuralgic affections, and in inflammatory diseases in which the nerves are considerably engaged, pain is suddenly produced by coughing, and this is occasioned by local congestion; this is evident from the redness of the face, the hæmorrhage from the nose or from recent wounds, so often produced by a fit of coughing. From the fact that momentary congestion is capable of producing momentary pain, it may be inferred that gouty twitches are owing to some cause which determines an instantaneous congestion of the affected part.

Among the anomalous local affections connected with the gouty habit, Dr. Graves notices the morbid habit of grinding the teeth which some persons have. This grinding of the teeth continues for years as a daily habit, and produces very remarkable changes in the conformation of those organs, affecting sometimes one side of the jaw, sometimes both. Dr. Graves is satisfied that the irritable state of the dental nerves, which gives rise to this irresistible tendency to grind the teeth, depends chiefly on the existence of gout in the constitution.

Generally speaking, a regular attack of gout in the extremities is preceded by a longer or shorter period of constitutional disturbance and dyspepsy. We must not, however, in making the diagnosis between gout and rheumatism, consider this distinction as not liable to exceptions—the arthritic attacks have been known to come on suddenly, without the slightest precursory derangement of the health, or the operation of any assignable cause. Another exception to the general rule, as mentioned by the author, is deserving of notice. In general, a fit of the gout is preceded and accompanied by a scanty secretion of turbid high-coloured urine. As the fit goes off, the urine increases in quantity, becomes clearer and paler, and loses its tendency to deposit the lithates and purpurates. The author has seen this order reversed. It is generally admitted that the gouty diathesis may excite its specific inflammation in most of the tissues of our organs. Our knowledge, however, regarding its effects in these various tissues is far from accurate. The changes it produces in the secretions of mucous membranes is a question which has not received sufficient atten-

tion. Though all admit the existence of gouty cough or bronchitis, the diagnosis and history of this affection are still very incomplete. The effects of gout on the lining membrane of the urethra and bladder are better known. Dr. Graves makes a remark here deserving attention concerning the bronchitis and pneumonia which accompany pulmonary consumption. He thinks that too much importance has been attached to the tubercles in this disease. What others call tubercular pneumonia, he would designate scrofulous pneumonia accompanied by tubercles. He is satisfied, in fact, that the essential characteristics of phthisis pulmonalis are derived from scrofula. This it is, which converts what would be common into consumptive pneumonia or bronchitis; this it is, which so often renders both incurable. Tubercles and Tubercular infiltration are mere results of nutrition morbidly modified by scrofula; they are effects, not causes; they often exist without scrofulous inflammation, and the latter may exist without them.

Dr. Graves next directs our attention to what he calls "gouty ramollissement of the spinal cord." He states that, in certain cases, where gout attacks the nerves, giving rise to gouty congestion or inflammation, frequently recurring and acquiring increased strength and deeper root as it proceeds, the morbid affection may, after years or even months, run on until it reaches the spinal cord, involving a certain portion or portions of that organ, and producing loss of sensation and motion commensurate to the amount of spinal derangement. This is no uncommon occurrence; it is merely an instance of disease originating in the periphery of the nervous system, passing along the trunk of the affected nerve with a retrograde motion, and finally reaching the central parts, and then giving rise to various forms of paralysis. Dr. Graves has frequently, in his writings, proved that disease commencing in the nerves of some particular part or organ, may be gradually propagated to the spine, producing all the symptoms which are referrible to an original affection of the nervous centres. In various parts of his Clinical Lectures he has brought forward numerous facts in proof of the propagation of disease from the circumference to the centre of the nervous system. He has shown, in fact, that enteritis, arising suddenly from indigestion and obstruction caused by an error in diet, was followed by paraplegia. He has treated cases of paraplegia occasioned by stricture, which were relieved by curing the stricture; he has also seen cases of acute and chronic affections of the uterus and kidneys which had entailed on the patients, as a remote consequence of the original disease, loss of the power of motion in the lower extremities, sometimes partial and curable, sometimes irremediable and complete. He has, in a word, seen cases which warrant him in concluding that gouty inflammation of the nerves and their neurilema, may, in process of time, extend to the spinal marrow and its investments, and give rise to derangements of the latter, terminating in ramollissement and structural degeneration. When paraplegia originates in disease of the spinal cord itself, retention of urine, or irritability of the bladder, often announce the approach of the disease long before the loss of power in the limbs becomes evident; whereas, in all those cases in which the paralysis creeps from the extremities along the nerves towards the spinal marrow, the bladder is affected only at a late period of the disease. It is obviously of great importance that practitioners should

be aware of this termination, as a knowledge of the fact may lead them to the timely adoption of preventive measures. Dr. Graves having experienced the total inefficacy of colchicum, hydriodate of potash, strychnine, and all the usual remedies, recommends the early insertion of issues over the spine, with prompt and decided mercurialisation. It may be well to observe that gout may, without first attacking the nerves of the extremities, attack the spinal marrow and its investing membranes in the first instance, or in consequence of metastasis.

Dr. Graves now makes some valuable, because practical, remarks on the effects of Mercury in Scrofulous Affections of the Lung. He was first led to the adoption of this mode of treatment by the successful results of Mercury in the hands of Dr. O'Beirne in treating scrofulous inflammation of the joints. This employment of mercury in the treatment of scrofulous diaeases was directly in the teeth of the prevailing theories of the day, according to which money was not only inadmissible, but absolutely mischeivous in persons of a scrofulous diathesis. Dr. Graves was led by analogy to apply the same principle of treatment to incipient scrofulous inflammation of the lung. He points out the cases to which such treatment is applicable; it is, he says, only in those cases wherein scrofulous inflammation commences in the lung before any general contamination of the system has taken place,.that mercury ought to be tried, and it will be of no avail except where the commencement of the scrofulous inflammation of the lung has arisen suddenly, and in consequence of the operation of some obvious cause, as catching cold, or the occurrence of hæmoptysis. Dr. Graves thinks, that too much stress has been laid on the affection of the lung by writers on phthisis. In most cases, no doubt, the disease commences in the lung; but, in other cases, it passes through many changes, and affects various organs before it attacks the lung. Dr. Graves has a decided objection to the terms; "tubercular inflammation," and considers the whole theory of inflammation being excited in the lung by the presence of tubercles, to be founded on erroneous views. He considers, also, that tubercles do not act in all cases on foreign bodies. He thinks that, in the treatment of scrofulous bronchitis and scrofulous pneumonia, mercury is a most valuable remedy—where the attack is recent, and has occurred under circumstances which preclude any suspicion of previous tubercular disease.

Dr. Graves makss some very useful remarks on a form of chronic laryngeal inflammation, which has been described under the name of phthisis laryngea. Of this disease he notices two varieties, In one case the hoarseness and sore throat follow the development of tubercles in the lung; in the other they precede it. Consumptive persons very frequently get, shortly after the occurrence of scrofulous inflammation of the lungs, sore throat, hoarseness, and laryngeal cough. But this is different from the hoarseness and cough which precede phthisis. In the former, the laryngeal symptoms are secondary, and form only a part of the general disease; in the latter, they constitute the first link in the chain of morbid action. The former takes place only in a constitution decidedly scrofulous; the latter occur most commonly in constitutions enfeebled by various debilitating causes. Now, the order of succession may be very easily inverted, and on such a constitution the accidental circumstances of a cold

falling on the larynx, may determine the appearance of disease in that part long before the lungs become engaged. Hence, in a case of chronic laryngitis, where the disease has lasted for any length of time, and where the patient's system has been impaired by any debilitating cause, or where scrofula is suspected, the prognosis must be guarded. Should there be no scrofulous deposition in the lung, the case is not to be given up at once. First, remove the inflammation of the throat, if possible—then endeavour to improve the state of the constitution. If there be much tenderness of the larynx on pressure, commence with the local detraction of blood. A few leeches are to be applied to the throat every second or third night: this to be continued for a week or fortnight. If there be no tenderness, leeches are not required. Then direct attention to those means which act immediately on the diseased mucous surface: one of the best applications for this is, a solution of nitrate of silver, or of sulphate of copper (10 grains to the ounce). The object of this is to change the action of the mucous surface. Iodine inhalations will also be found useful. Counter-irritation also, as by croton-oil frictions, will be found useful in this case. The use of decoction of sarsaparilla, with nitric acid, will also be found useful in these cases. The patient also must refrain as much as possible from speaking.

Hoarseness.—Dr. Graves makes some very judicious remarks on a form of hoarseness frequently observed in growing boys or girls, which assumes a very chronic character, and often resists every form of treatment. A boy gets cold, followed by sore-throat, and feverish symptoms, which may last for a few days, and then disappear under the use of aperient medicines, or perhaps without any interference. The feverishness and soreness of throat subside, but the hoarseness remains. Everything else may go on perfectly well, with the exception of this impairment of the voice.

On examination there is found no appearance of inflammation in the mucous membrane, no tenderness in the region of the larynx. This form of disease depends on a relaxed state of the chordæ vocales, and, perhaps, the muscles of the larynx. In such cases Dr. Graves recommends the use of strong stimulent gargles—tincture of capsicum with decoction of bark—frictions over the region of the larynx and external fauces, with croton oil—strict silence should be enjoined. Should these means fail, the inhalation of vapour arising from tincture of iodine and tincture of conium, added to hot water in a proper apparatus, may be employed; but in all obstinate cases the sheet-anchor is mercury exhibited internally, and by means of inhaling the fumes of hydrargyrum cum cretâ. The mouth should be slightly touched. Before we employ mercury, however, for the cure of hoarseness, we must ascertain whether it arises from a phthisical tendency.

We now find ourselves compelled to terminate our notice of Dr. Graves's work. Before doing so, however, we deem it but justice to state, that we consider it as one of the most valuable contributions that has been made for many years to practical medicine. The excellent, practical points to be found in every page of the book, fully entitle Dr. Graves to the high character he has long sustained, that of a sound, well

educated physician, who, to talents evidently of the very first order, has superadded all the advantages to be derived from cultivated experience, and an intimate acquaintance with the works of the ablest medical writers, both foreign and domestic. To the untiring energy, with which Dr. Graves has applied these great advantages in establishing a school of Clinical Instruction, the Dublin School of Medicine is mainly indebted for the high character it now enjoys all over Europe and America. Of the characteristic originality of Dr. Graves's mind, we have had many proofs in the numerous discoveries and improvements made by him in the field of pathology; nor is that the least wherein he establishes, by numerous facts, that *disease commencing in the nerves of any particular part or organ, may be gradually propagated to the spine, and so produce all the symptoms referrible to an affection originating in the nervous centre.* We cannot, for the life of us, help thinking that something more than the mere germ of the reflex-function-principle is contained in this proposition, laid down and proved by Dr. Graves many years since—nor would this be the first instance wherein physiology was indebted for its advancement to the helping hand of pathology.

Periscope;

OR

CIRCUMSPECTIVE REVIEW.

"Ore trahit quodcunque potest, atque addit acervo:"

NOTICES OF SOME NEW WORKS.

An Essay on Thunder-Storms—their Phenomena, and the Means of Safety from their Effects. By *E. A. Turley*, M.D., &c.

The neighbourhood of Worcester having been visited by an awful thunder-storm during the Summer of 1843, our author, finding great misapprehension prevailing among the public from these terrific phenomena, was induced to write a small Essay on the identity of electricity and lightning, with a statement of some of its known laws. The public are not aware that fifty thousand pounds' worth of property is annually destroyed by this gigantic element, and that, since the year 1793, more than 250 ships of war have suffered by thunder-storms—70 seamen have been killed—and 130 wounded. It is not in our power to follow our author through the details of his Essay, but to exhibit a sample or two that will, at once, prove interesting in themselves, and show the ability with which our author manages his subject.

"A thunder-storm rarely arises without a previous sunny day, during which the vapour of the earth has carried with it a portion of positive electricity; for it must be borne in mind that water changed to vapour elicits electricity. The vapour being lighter than the air, ascends till it meets with a rarer atmosphere, and is carried by the wind away from the surface of the earth, whence it arose. There it perhaps meets with a colder medium, becomes condensed, and descends very near to the earth, till at last it is averted in its course by the attraction of the earth oppositely charged—that is, with negative electricity. There is now set up an attraction betwixt the earth and the cloud, and it requires only some conductor—such as a tree or tall house, a chimney or a high hill, to form a medium of union, when a discharge is made, and the equilibrium is restored. We observe the flash, and call it lightning; but if we had pushed together two vessels charged as the clouds were, the one with positive and the other with negative electricity, till they nearly touched, we should then have seen a flash, which we call the electric spark; we hear a snap at the same instant, which in the clouds we should have called thunder. Hence lightning is the electric flash, and the displacement and consumption of a portion of the air causes the thunder. The sulphureous smell which often accompanies the atmospheric discharges is produced by a decomposition of a portion of the atmospheric air by the lightning, the result being the evolution of nitrogen gas. It may prove interesting to the reader to direct his attention to what visibly takes place in the appearance of the clouds during a thunder-storm, and these appearances were well marked on Wednesday, August 9th. From an elevation in St. John's in the morning of that day the thunder cloud was seen in the direction N.N.W.; on each side of it and above it were light clouds, with jagged edges, moving in opposite and variable directions, as though impelled by different currents. The atmosphere was calm and warm, producing a feeling of faintness and oppression; the cattle were moving about uneasily, but not grazing.

A discharge took place in the direction of Hallow, when immediately all the lighter clouds hastened to the thunder cloud, as though they were anxious to contribute their quota of fresh ammunition. At one period there were four currents moving the light clouds in alternate layers in opposite directions. The rain now fell in torrents, mixed with a little hail. The black cloud wheeled on towards Barbourne, when an almost perpendicular flash of a yellow colour and zig-zag form, again discharged the cloud, which now took a circuit towards Broadway. Four times did Worcester appear the centre of the electric circuit in the course of the day. The thunder was heard at Worcester, more or less, during nineteen hours, viz., from three A. M. till ten P. M."

MEANS OF SAFETY FOR MAN AND ANIMALS.

"Supposing, then, a person overtaken by a thunder-storm on a hill or mountain—what should he do? let him immediately descend, or descend in part, and lie down. If he be in a field? let him lie flat down, or betake himself to a hedge, near to a tree, if possible, and yet not within twenty yards of it. If on horseback? let him dismount and turn his horse adrift. If in a carriage? close it, and sit down in the middle of it. In a barn? let him avoid the walls. Should he be in a vessel at sea? let him avoid the masts and forecastle, and betake himself to his hammock, except he be on board an iron vessel, and then he will be perfectly protected. In a boat? furl the sails, rear a wet oar, near the head of the boat, and retire to the stern and lie down. If in a house? let him, if possible, choose a middle chamber, place the bed in the middle of the room through which, if possible, no flue passes, and there he may lie down in tolerable security. If a female is alarmed on seeing the lightning? let her take her seat in the cellar, far away from the walls, and especially from the foundation of a chimney. A cellar affords good security against the upward or negative current, whilst a bed affords the best security against the effects of the downward bolt or positive current. A position near a lake or stream of water is highly dangerous. 'The centre of a *railway carriage*, at a distance from the engine, is perhaps the securest place of all. The rails dissipate the negative charge; the low flat on which they are placed renders them safer than higher uneven ground; and should a train be struck, the chimney and engine would be the parts most attractive. As yet we have not heard of an accident on any line from lightning. The Glasgow and Liverpool mail was struck in 1836, when three outside passengers were killed, while those inside escaped uninjured. When lightning once enters a room, it will leave traces of its powers on almost everything of a metallic nature near to the chimney. Lightning rarely passes an open space, unless conducted to it by metal. Windows are often broken by the concussion of the air, even at a considerable distance from the track of the lightning. Since a current of moist air may become a conductor, a position betwixt an open door and window should be avoided. Some persons *foolishly open their doors and windows during tempests*; this practice admits a current of damp air, which becomes a conductor of electricity; as is exemplified by the difficulty of performing electrical experiments in moist or cloudy weather. A pocket electrometer might be constructed for a trifle, which would warn the possessor of his danger. People will often assert that they have seen the lightning playing on the bell-wires and other substances; the absurdity of such statements is best shown by reference to the fact that lightning travels at the rate of 576,000 miles in a second of time, and that it could be conveyed from this city to London and back in the twinkling of an eye; in short, in no appreciable time." 21.

The whole of the Essay is written with equal talent and utility, as is exhibited in the foregoing extracts.

Elementary Instruction in Chemical Analysis. By Dr. *C. R. Fresenius*. With a Preface by Professor *Liebig*, Edited by *J. Lloyd Bullock*. Octavo, pp. 284. Churchill.

It cannot be questioned that medicine is destined shortly to undergo great changes from the advance of chemistry. The methods devised within a few past years for investigating the constitution of organic bodies, and for tracing the changes they pass through under the influence of the vital principle, have brought this hitherto mysterious part of nature within the reach of inductive science. Their application to the products of disease must now follow, and the agency of chemical forces in originating or sustaining diseased action be determined. Whether the sanguine expectations of the chemico-pathologists be realized to their full extent or not, here is an unexplored field for investigation, and treasures of new truths and principles lie beneath the surface to reward the inquirer. We would strongly recommend our junior brethren to turn their attention this way, and to employ their leisure in making themselves practically expert in chemical processes. Of course a complete knowledge of inorganic chemistry is a preliminary qualification for the branch more immediately belonging to the physician, but this may be obtained with so much ease as to deserve only the name of a recreation. The work before us is eminently calculated to afford facilities for this object, and with respect to its character, we cannot say more than has been said by an able critic, "Liebig."

"Dr. Fresenius conducts the course of elementary instruction, in mineral analysis, in the laboratory of the University of Giessen. During the two last sessions he has followed the method described in his work, entitled, 'Elementary Instruction in Qualitative Chemical Analysis.' This method I can confidently recommend from my own personal experience to all who are desirous of obtaining instruction in inorganic analysis, for its simplicity, usefulness, and the facility with which it may be apprehended.

"I consider Dr. Fresenius' work extremely useful as an introduction to Professor H. Rose's excellent manual, and for adoption in institutions where practical chemistry is taught, but it is especially adapted to the use of Pharmaceutical Chemists.

"Further, a number of experiments and discoveries have been recently made in our laboratory, which have enabled Dr. Fresenius to give many new and simplified methods of separating substances, which will render his work equally welcome to those who already are familiar with the larger works on inorganic analysis.—*Justus Liebig*."

After this opinion of Dr. Fresenius' work we should think it quite indispensable to the chemist, and to every medical student who wishes to obtain any skill in practice, or whose views extend beyond the small amount of chemistry to be learned from lectures. He will find this work the simplest and most lucid guide for the operations of the laboratory existing, and we congratulate the English student upon its appearance in our language.

Blood and Urine of Chlorotic Subjects. (Auszug aus Buchner's Repertor., II. Reihe, Bd. 29, Heft 2.)

The results which have been obtained from the experiments instituted by Andral, Gavarret, and Simon, on the blood of chlorotic patients, before and after the use of ferruginous medicines, and which coincide so closely, find an additional confirmation in the experiments recently instituted by Herberger. Of the preparations of iron, those employed were the ferrum alcoholisatum, Tinctura ferri acetici

ætherea, and the Vinum ferri—their use was continued for the space of eight weeks. The patient was a young girl about 20 years of age, who had repeatedly tried the Schwalbach bath without any permanent benefit. The following analyses show the composition of the blood before the use of the iron (A,) and after the use of the iron (B.) The blood, after spontaneous coagulation, formed a somewhat copious coagulum without the inflammatory coat.

	A.	B.
Water	868,34	807,08
Solid constituents	131,66	192,92
Fibrin	3,609	1,950
Albumen	78,200	81,509
Globulin	36,470	94,290
Hæmatin	1,590	4,029
Fat	2,310	2,470
Extractive matter and salts	8,921	8,236
Loss	0,500	0,409

These experiments approximate very closely to those instituted by. Simon;* he too observed that, notwithstanding the extraordinary increase of Hæmatoglobulin after the use of iron, the fibrin had diminished, and that, before as well as after the treatment, the quantity of albumen continued the same.

Herberger's experiments are particularly interesting for this reason, that he at the same time examined the urine of the patient before and after the use of the iron; from Becquerell's observations (Semeiotique des urines, p. 291) it may be seen that, simultaneously with the diminution of the blood-corpuscles, the quantity of the urea in the urine diminishes, so that in the one case the quantity of the urea in the urine of chlorotic subjects scarcely amounts to more than the half of that contained in normal urine. Nearly the same proportions result from Herberger's experiments; the urine of a chlorotic girl was examined on three different days during her illness, and on two different days after her recovery.

Urine before the Use of Iron.

	1	2	3
Spec. grav.	1.010	1,009	1,012
Quantity of urine passed in 24 hours	32oz.	42oz.	35oz.
Water	975.43	978,21	971,98
Solid matters	24,57	21,79	28,02
Urea	7,04	7,00	7,12
Uric acid	0,13	0,21	0,19
Extractive matter	10,48	9.00	13,99
Fixed salts	6,80	5,50	6,62
Loss	0,12	0,08	0,10

Urine after the Use of Iron.

	1	2
Water	940 16	938,70
Solid matters	59,84	61,30
Urea	26.84	27,36
Uric acid	0,91	0,96

* Medicinische Chemie, Bd. II, S. 207.

	1	2
Extractive matter	18,62	16,28
Fixed salts	13,32	15,71
Loss	0,12	0,99

If the quantity of the urea and uric acid per cent. in the solid residue be calculated from these analyses, the following numbers are found to result in the same series as above.

	1	2	3	4	5
Urea	28,7	32,1	25,4	44,9	46,2
Uric Acid . . .	0,5	0,9	0,7	1,5	1,5

The striking difference in the quantities of the urea and uric acid, which the urine contains before and after the use of iron, appears from hence sufficiently manifest. In order to form a correct estimate, however, reference must be had to Lehmann's observations respecting the influence of diet on the urea and uric acid contained in the urine. Herberger remarks that the girl, after she recovered, indulged her appetite very much with a plentiful quantity of animal food. On the other hand, it must not be overlooked that, in the case of chlorotic individuals, nitrogenized articles of food are not excluded; in this instance, therefore, there may be merely an increase in the quantity of the ordinary food, and so the great increase in the quantity of the urea may be in part referrible to the changed composition of the blood. Herberger satisfied himself that the urine, during the process of cure, contained iron, more especially in the morning, and also that the perspiration contained the same substance.—(*Beitrage zur Physiologischen und Pathologischen Chemie und Mikroscopie von Dr. Fr. Simon, Berlin*, 1843.)

Contributions to the Subject of the Action of Medicines.

On the Action of Alcohol and Ether on the Animal System.

C. H. Mitscherlich has instituted several experiments. That alcohol passes into the blood, that it is voided partly through the pulmonary transpiration, partly through the urine, follows from the experiments of Orfila, Magendie, Percy, and several others. Anhydrous alcohol coagulates the soluble proteine combinations, as albumen and caseine, and changes them into those modifications that are insoluble in water; in the same manner the albumen which is mixed with the contents of the stomach is coagulated; alcohol applied to the external skin first produces a feeling of cold by evaporation; sometime after, on the contrary, heat and burning are felt. On account of the indurated and dried state of the cells which constitute the epidermis, the latter takes in the alcohol slowly; on the contrary, the alcohol penetrates the epithelium much easier: it soon excites a feeling of burning, which is again followed by inflammation, the epithelia change their form, and shrink; in recent wounds, in which the nerves are exposed, alcohol produces the most acute pain, and soon after inflammation. Rabbits, into whose stomachs one ounce of anhydrous alcohol had been injected, fell, in a short time, into a state of great faintness, sensation and motion were diminished, so that the animals could no longer keep themselves upright, the pulse and respiration were very much hurried, death followed from one hour and a half to two hours, without any convulsions. On instituting an examination immediately after death, the alcoholic odour was palpable, the muscles still contracted when mechanically irritated, the peristaltic motion of the intestinal canal was weak, the stomach was found to be very much inflamed; the colour of the small intestine was not changed; the gastric contents smelt

strongly of alcohol, and were partly coagulated. The chemical action of alcohol on the coats of the stomach, was placed beyond all doubt; the epithelium was detached only in some places: it was of a gray-white colour, and easily torn, the form of its cells was changed, they appeared, as it were, shrivelled up. The vascular membrane was a dark-red brown, full of blood, and penetrated with a partly clear or reddish-coloured exudation, whereby it was increased considerably in thickness, but the exudation itself was not coagulated; the muscular coat and the peritoneal lining were not much altered; the small intestine was little changed; the large intestine, the lungs, heart, kidneys, and liver, were in their normal state; the brain and vessels of the cerebral membranes were not very much filled with blood, nor was any exudation perceptible; the blood did not appear in any way changed, nor could the odour of alcohol be detected. Dilute alcoholic fluids produce no chemical change in the coats of the stomach, but, in the case of persons of temperate habits, chemical re-actions are to be apprehended from the immoderate use of a fluid containing 40 per cent. of brandy.

That the use of strong alcoholic fluids is followed by inflammation of the stomach, and that this has been detected in drunkards who died from the intemperate use of brandy, is a thing well known. When alcohol passes into the blood, it is not only conveyed thither by the veins, but it penetrates the tissues also, and in this way comes into contact with the vessels carrying blood; this happens the more easily in proportion as the alcohol is the more dilute. The phenomena which take place in consequence of the entrance of alcohol into the blood, and of its direct actions on the heart, brain, and spinal marrow, are at times not to be distinguished from those which follow by sympathy from the stomach; in the case of dilute alcoholic fluids, the former seem to predominate, whilst in the case of strong alcohol, the latter.

The chemical habitude of ether, with respect to organic matters, is at present of no importance in explaining its action. Ether produces no perceptible change on the albumen of the blood-serum; of all the constituents of the animal body it dissolves only the fat; epithelium, brought into contact with ether, is not changed; on the external skin ether produces cold by evaporation, and after some time it causes warmth and burning; on the contrary, when it is taken into the mouth, it very soon occasions a sensation of burning, the epithelium affording a more rapid ingress to the ether than the epidermis; in wounds where the nerves are laid bare, a sensation of burning is very soon felt. A rabbit, into whose stomach a drachm of ether had been injected, seemed little excited by it, became very soon insensible, and fell on its side; the body became tympanitic, and, after fourteen minutes, death followed without spasms; on opening the body, the smell of the ether was very perceptible, the muscles contracted when mechanically irritated, the peristaltic motion of the intestine was very feeble; the stomach and small intestine were much inflamed, their contents did not appear changed, and there was only a little ether mixed with them, the cells of the gastric mucous membrane did not differ much from their normal form; in some places, where the mucous membrane was covered with blood, the epithelial cells were swollen to about six or eight times their natural size; the vascular membrane was much injected, the muscular and peritoneal coats were not changed, the small intestine was inflamed and contained much ether, its cylindrical cells were, for the most part, swollen. If, in cases where larger doses of ether were given, death followed very soon, the intestinal canal was not changed. Sometimes the animals die of suffocation amid the rapid evaporation of the ether. The ether accordingly occasions violent inflammation of the stomach and the intestinal canal; it penetrates the membranes, and is then conveyed into the blood-vessels. A chemical action on the tissues could not be perceived.

The structural change found in the intestinal canal, the swelling of the epithelial cells, and their removal, is not a consequence of a chemical action, but is oc-

casioned through the action of the organism; the general action of ether on the organism, partly from the stomach, and partly from its entrance into the blood, is therefore still unknown.—(*Ibid.*)

ON THE ANATOMY AND DISEASES OF THE URINARY AND SEXUAL ORGANS. By *G. J. Guthrie*, F.R.S. Third Edition.

MR. GUTHRIE states, that time has confirmed the views he originally entertained of the Anatomy and Surgery of the Parts of which this work treats, while the experience which he has acquired, has enabled him to make the volume more worthy of the good opinion of the profession. It has been almost entirely reconstructed, and the directions for the treatment of each particular complaint are rendered so plain, that any one of even moderate capacity may understand and practise them. The work is now divided into two parts, of which this, which is the first, is devoted to the consideration of the Structure of the Bladder and of the Urethra, of the Formation of Spasmodic and Permanent Stricture, of the Symptoms of and Means of Cure of Stricture, of the Treatment of Impassable Stricture, of Suppression and Retention of Urine, and of Irritation of the Membranous and Prostatic parts of the Urethra.

The Second Part is to follow with the least possible delay; and will contain, the Chronic Complaints of the Prostate, the Diseases of the Bladder, the Treatment of Calculous Affections, and the various Modes of Operating for the Removal of a Stone from the Bladder.

The work is too well known to require any commendations on our part.

PRINCIPLES OF FORENSIC MEDICINE. By *Wm. A. Guy*, M B. Cantab. Professor of Forensic Medicine, King's College. Part II., London, 1843.

THE Second Part of this work has been just published. It commences with the subject of *Life Assurance*. The space devoted to the subject of Insanity, in this part, is very considerable, the author, as he himself states, being unwilling to pass over, or to treat too briefly, the grave questions which have recently occupied public attention. In his preliminary observations, on Unsoundness of Mind, he very properly lays it down, that a chief source of the difficulties connected with the subject of Insanity, may be traced to the prominence and importance formerly given, in works on the human mind, to one or two of its higher faculties. The reason and imagination were put so prominently forward, and the emotions and passions were made to play so subordinate a part, that soundness and unsoundness of mind came to be regarded as almost synonymous with a sound or erring reason; imagination had to bear all the blame of misleading the judgment, and delusion became the favourite test of Insanity. To the phrenologists our author justly ascribes the great merit of having directed attention to those faculties which are the real source of action—the emotions and passions; and to them he gives the praise of having originated the simplest and, by far, the most practical, theory of the human mind. There no longer exists any doubt respecting the soundness of the theory, that the mind is a compound of several faculties, capable of acting either alone or in combination, varying greatly in power in different persons, and in the same person at different times.

Once we admit the theory of the separate existence, and possible separate

action, of the several faculties of the mind,—the reasoning faculties, the emotions or sentiments, and the passions,—and it is not more difficult to imagine a moral than an intellectual insanity; let us only allow that the several faculties, originally of different power in different persons, may combine in many different ways, and we have the materials of an almost infinite variety of character; the key to endless diversities of opinion, and the explanation of all that is most obscure in the motive and conduct of mankind. On the very important subject of moral mania our author is very happy. It is well known that, previous to the time of the humane Pinel, insanity was generally considered as either exclusively, or chiefly, a malady of the reasoning faculties. Influenced by the prevalent metaphysical doctrines of his time, according to which the existence of a few faculties were sufficient to explain all the phenomena of the sound and unsound mind, this great man found, to his great surprise, that there were many maniacs, who betrayed no lesion whatever of the understanding, but were under the dominion of instinctive and abstract fury, as if the affective faculties alone had sustained injury. The most practical observers now recognize the reality and importance of the distinction between intellectual and moral mania. In fact, according to Pritchard, moral generally precedes intellectual insanity. For excellent and valuable information on the proximate causes of Sudden Death—of death commencing in the HEART (*Syncope*)—in the HEAD (*asthenia*,) and in the LUNGS (*asphyxia apnœa*,) we beg leave to refer to the Chapter on Sudden Death, (p 300) In closing our notice of this part of Dr. Guy's work, we have no hesitation in recommending it to the careful perusal of medical men, both students and practitioners. The compact form, and great condensation, which characterize it, cannot fail to procure it purchasers among those whose numerous avocations will not afford them time to peruse more voluminous works. The typographical elegance with which the work is executed, is in strict accordance with the well-known taste of the publisher.

ELEMENTS OF CHEMISTRY, INCLUDING THE MOST RECENT DISCOVERIES AND APPLICATIONS OF THE SCIENCE TO MEDICINE AND PHARMACY, AND TO THE ARTS. By *Robert Kane*, M.D. M.R.I.A. Professor of Natural Philosophy to the Royal Dublin Society; Professor of Chemistry to the Apothecaries' Hall of Ireland. Dublin, 1842; Hodges and Smith. London, Longman and Co.

BY some unaccountable over-sight we have, up to the present time, omitted to notice this work of Professor Kane. We assure the author the omission was wholly unintentional. His high and well-established character, as a Scientific and Practical Chemist, his numerous and ingenious discoveries in his favourite science, discoveries which have, at this early period of his life, acquired for him a more than European fame, are a sufficient guarantee for the merits of any chemical work coming from Dr. Kane. The present work is now so universally acknowledged, as the best text-book of Chemistry in the English language, as to supersede the necessity of any remarks from us. If external reference, with respect to the great merits of Kane's Elements of Chemistry were necessary, we might point to the high character given of it by the greatest chemist of this or of any other country, we mean the distinguished and worthy successor of Sir Humphrey Davy, Faraday, who has declared Professor Kane's work the best Introduction to Chemistry that has as yet appeared, and has recommended its adoption in the Royal School of Woolwich. Among the many excellent qualities of this work, we were forcibly struck by the great simplicity of the author's style, which is such as to render even the most complicated parts of the science

intelligible to the veriest tyro in chemistry—while to the more advanced student it cannot fail to recommend itself by the circumstance of its containing all the latest improvements and discoveries in Chemical Science. We perceive that our American friends are preparing a new edition.

Elements of Natural Philosophy; being an Experimental Introduction to the Study of the Physical Sciences. By *Golding Bird*, A.M. M.D. F.L.S. Assistant-Physician to Guy's Hospital, &c. London, Churchill. Pp. 479, 300 woodcuts. Second edition.

No one now thinks of raising the question, *cui bono*, regarding the utility of any branch of knowledge connected, however indirectly, with our profession. Independently of the actual importance of the several sciences included under the comprehensive word "physics," to all, especially to the student of medicine, much indirect good arises from their study, in the discipline of the mind produced by an acquaintance with the inductive sciences. It were well for the medical profession generally, if its members took a lesson from the mode in which successful researches in physics have been ever carried on, for by accustoming themselves to reason from the known to the unknown, they would be less likely to rush too hastily to conclusions when the premises are either obscure, or scarcely thought worth examining.

The rapid sale of the first impression of this work is a sufficient proof of its merit having been appreciated, and Dr. Golding Bird has availed himself of the opportunity thus afforded of much improving and enlarging his book, by the addition of an account of many of the numerous discoveries in science which the last four years have produced. In pronouncing this edition, as the most useful and complete manual of physics before the public, we feel that we are doing its author but bare justice. It is, in fact, the only work we possess which the student can use as a text-book in commencing the study of his profession, especially in preparing himself for his matriculation examination at the Metropolitan University.

The numerous woodcuts which appear in almost every page, afford no small assistance to the student in comprehending the *penetralia* of the subjects treated on, and will greatly diminish his labours. We again cordially recommend Dr. Golding Bird's volume, as the most comprehensive and valuable manual of physics we possess.

Semeiotique des Urines, ou Traite des Alterations de l'Urine dans les Maladies; suivie d'un Traite de la Maladie de Bright aux divers Ages de la Vie. Par *Alfred Becquerel*, D.M. &c. &c. Paris, 1841.

Semeiology of the Urine; or a Treatise on the Changes of the Urine in Diseases; followed by a Treatise on Bright's Disease at the different Ages of Life. By Dr. *Becquerel*, &c. &c.

This work has been divided into four parts; the first part treats of the *Chemical and Physical Properties of the Urine*. The Ancients made a distinction between the urine passed at different periods of the day: thus they admitted three species of urine:—1. *Urina potûs*. This name they gave to the urine voided after swallowing a certain quantity of liquid, whether this liquid was drunk during meals, or in the intervals between meals: this urine depends on the quantity of liquid drunk; it is generally clearer, more limpid, and less dense than the urine passed

under other circumstances. 2. *Urina digestionis.*—This is the urine passed two or three hours after meals, and when the digestion is partly, or entirely completed. This urine is influenced by the quantity and nature of the aliment introduced into the system. It is denser, more highly-coloured, and less abundant than the preceding. 3. *Urina sanguinis*, or the urine of the morning; which may be considered as the pure product of the renal secretion. This species of urine is connected with the composition of the blood, and may be considered as influenced in the least possible degree by the liquid and aliments introduced into the system the preceding day. This urine is deeper, more dense, and more acid than the two preceding species. The distinction of these three species of urine is of great importance, and it is not improbable that the difference found between the analysis of the urine as given by different chemists should be attributed to the circumstances of their not having collected the urine for examination at the same period of the day. Thus the quantity of urea and of uric acid, given by Berzelius, is evidently greater than it would have been, had he taken the mean of the three species of urine. In diseases capable of occasioning any changes in the composition of the urine, it may be laid down generally that, in the great majority of cases, this distinction no longer exists, except only those cases where a great quantity of liquid has been taken into the system in the space of twenty-four hours. In these diseases the urine, except in the exceptional cases, is similar to itself, at whatever part of the day it may be collected. Still the urine voided in the morning was that selected by the author for experimentation, because that urine bears a nearer relation than any other to the composition of the blood, and because, when collected under the same circumstances, it is always like to itself. These same reasons have induced most physicians, when studying the properties of the urine, to select the morning urine. There is a crowd of questions, however, which the physician may put to himself and which the examination of the morning urine only will not enable him to answer. Thus, for instance, the urine of an individual who labours under intense febrile re-action is denser, more acid, and more highly-coloured than in a healthy individual, and further, it presents frequently a copious sediment of uric acid combined with the colouring matter. Such urine contains, then, more uric acid, and more animal matters than in the healthy state. Now this increase may not be real, it may be only apparent, and relative. Who can say with certainty that it may not depend on the diminution of the quantity of water, and the greater concentration of the different solid principles? Another method of proceeding has been suggested by M. Chosset, and adopted by M. Lecanu; it consists in collecting all the urine passed in the twenty-four hours, mixing them together and analyzing the mixture. This method has been adopted by the author in a great number of his experiments; it is not, however, he acknowledges, entirely free from error, and is attended with difficulties.

In Chap. II. M. Becquerel gives the *Composition* of the Urine in the normal state. He begins by laying it down as a general principle, that the urine passed in the space of twenty-four hours, or that passed in the morning by the same individual, is never absolutely and indentically of the same composition on any two or three consecutive days, in a word, that the mean quantity of each chemical element is never absolutely the same; it varies within limits which in general are not considerable, but which, however, may become so. Thus, for instance, M. Lecanu found that, in man, the urea secreted in twenty-four hours may vary between 22·446 grains and 9·119 grains, and in women between 17·983 and 9·581 grains; it is the mean of these oscillations that are given in the Table exhibiting the composition of the urine in the normal state. When the quantity of such or such a principle obtained by the analysis of urine voided in a state of disease is to be compared to this, it will be necessary to examine whether this quantity differs little or much from the normal mean: if it differ but little, the conclusion will be that it is not beyond the healthy limits.

TABLE, *exhibiting the Mean Composition of the Urine in the Male and Female, in the Normal State, and the Mean deduced from their addition. This Table is constructed from the results of the analyses of 8 specimens of healthy urine, 4 of men and 4 of Women.*

Chemical Elements continued in the Urine.	Males. Urine of 24 hours.	Males. Composition in 1000 parts.	Females. Urine of 24 hours.	Females. Composition in 1000 parts.	General Mean. Urine of 24 hours.	General Mean. Composition in 1000 parts.
Quantities of Urine	1267·8	1000	1371·7	1000	1319·8	1000.
Density	1018·900		1015·120		1017·010	
Water	1227·779	968·815	1337·429	975·052	1282·634	971·935
Other matters than water afforded by direct evaporation	39·521	31·185	34·211	24·918	36·866	28·066
Urea	17·537	13·838	15·582	10·365	16·555	12·102
Uric Acid	0·495	0·391	0·557	0·408	0·526	0·398
Salts fixed and not decomposable at a red heat. {Chlorides, Phosphates, Sulphates} {Lime, Soda, Potass, Magnesia}	9·751	7·695	8·426	6·143	*9·089	**6·919
Organic matters which cannot be isolated, and estimated separately {Lactic Acid, Lactate of Ammonia, Colouring matters, Extractive matters, Hydrochlorate of Ammonia}	11·738	9·261	9·655	8·033	10·696	8.647

Composition of the Fixed Salts in the Urine voided in 24 hours, and in 1000 parts.

* Urine of 24 hours:—

Sum	9·089
Chlorine	0·659
Sulphuric acid	1·123
Phosphoric acid	0·417
Potass	1·708
Alkaline and Earthy bases {Soda, Lime, Magnesia}	5·181

** Composition in 1000 parts:

Sum	6·919
Chlorine	0·502
Sulphuric acid	0·855
Phosphoric acid	0·317
Potass	1·300
Alkaline and Earthy bases {Soda, Lime, Magnesia}	3·944

The quantity of water voided in the space of 24 hours, may be represented by the following means, or rather by variations or oscillations around these means:—

In males	1227·779 grains
In females	1337·489 grains
General mean	1282·634 grains

Whenever the numbers are found to vary from 800 to 1,500 grains of urine passed in 24 hours, these numbers are not to be considered as without the physiological limits—but to admit a morbid alteration in the quantity, its variations must be below 800 grains, and above 1,500 grains The quantity of water may increase, and also may be diminished. One physiological circumstance and three great pathological causes may increase this quantity. This great physiological cause is the swallowing of a great quantity of liquid, whilst the three pathological causes are the following:—1, Polydypsia; 2, Diabetes; 3, an attack of hysteria, or any nervous affection.

The case of a diminution in the quantity is much less frequent than its increase. The causes of this diminution are the following:—1. Fever, and, therefore, all circumstances capable of causing febrile re-action, more especially acute and chronic inflammation. 2. Diseases of the heart and liver. 3. Diseases of whatsoever kind, capable of exciting a general functional disturbance of the system. 4. Profuse sweats. 5. The near approach of death. The number expressing the normal quantity of water contained in 1000 grains of urine oscillates around the number 971 934 grains, sometimes more, sometimes less—this number may increase or diminish. The cases wherein the quantity of water increases with respect to the matters it holds in solution, are chlorosis, and the various anæmic diseases.

Of the Solid Principles held in Solution in Water.

The sum of the Solid principles held in solution in water is given by direct evaporation. The means representing these in the normal state are the following:—

	Water.	*Solid Principles secreted in 24 hours.*
Males	1227·779	39 521.
Females	1337·489	34·211.
General mean . .	1282·634	36·866.

These means are not the same in the male and female; nor are they invariably the same even in the same individual. In the male the variations may be between 36 and 41—in the female, between 32 and 36. The mean oscillations in the two sexes may be between 32 and 41.

The quantity of solid principles imparts variable qualities to the urine; according as they are dissolved in a greater or less quantity of water. The amount of these matters held in solution may vary under certain physiological or pathological influences. 1st. The causes which increase them are the following:—1, a rich, abundant, azotised diet; 2, the introduction into the system of an abnormal quantity of water; 3, polydypsia; 4, nervous affections, and more especially hysterical paroxysms; 5, diabetes. The amount of the solid principles held in solution in the urine, is very frequently diminished in disease; this is a much more common occurrence than the preceding. 1st. Under the influence of fever, acute inflammation, functional disturbances, diseases of the heart or lungs, diseases of the liver, the quantity of solid matters secreted in 24 hours is diminished. 2d. Under the influence of these same conditions, if there also exists exhaustion, debility, or anæmia, the amount of the solid principles held in solution is considerably diminished. 3d. Under the influence of entirely opposite states, the amount of the matters held in solution is observed to diminish

These causes are—1. Chlorosis. 2. Anemia. 3. Debility, produced by entirely different causes, losses of blood, purulent discharges, &c. &c. 4. Exhaustion occasioned by chronic diseases.

Urea. In the healthy state, the mean of the quantity of urea contained in 1000 grains of urine oscillates around the following numbers. Urine having the following mean densities:

In males,	D 1018·900,	urea . . .	13·838
In females,	D. 1015·120,	id. . . .	10·366
General mean,	D. 1017·010,	id. . . .	12·102

As well as the quantity, so also the quality, of the urea is liable to change; every time the urine becomes alkaline, and this frequently occurs, whether this takes place within the body, or results from the decomposition of the urine out of the body, this change is the consequence of changes in the urea.

Uric Acid.—This acid, though existing in the urine in small quantity, is, however, one of its most essential elements, and one which varies most in diseases. It has been made a subject of inquiry whether this uric acid exists perfectly free in the urine, or is combined with a base, and in the state of an acid urate, and more especially an acid urate of ammonia. The uric acid is not in the state of perfect freedom; for the urine, whether spontaneously, or under the influence of a re-agent, scarcely ever throws down crystallised uric acid. On the other hand, these sediments, when examined with the microscope, are found to consist of a substance which presents itself under the appearance of a very fine, amorphous powder. According to Quevenne, with whom our author agrees, this powder is neither more nor less than uric acid, which has become amorphous by reason of its combination or mixture with animal matters, as also with the colouring matter of the urine.

With respect to the usual physiological limits of uric acid, our author gives the following analysis:—

1 *Quantity of Uric Acid, compared to that of the other Elements, the Urine being* 1000.

	Density.	Uric Acid.
Males	1018·900	0·391
Females . . .	1015·170	0·406
General mean .	1017·010	0·398

2. *Quantity of Uric Acid secreted in 24 hours.*

	Quantity of Urine.	Density.	Uric Acid.
Males	1267·3	1018·900	0·495
Females . . .	1371·7	1015·120	0·557
General mean . .	1319·5	1017·017	0·526

From these tables we may conclude that, in 1000 parts of urine, the physiological mean varies between 0·3 and 0·5,—and in the quantity secreted in 24 hours, between 0.4 and 0.6.

Want of space prevents us from continuing this analysis.

Cataract and its Treatment, comprising an Easy Mode of Dividing the Cornea for its Extraction, &c. By *John Scott*, Esq.

Mr. Scott states, that he has long considered the chief danger attending the extraction of cataract has arisen from the force that is necessary to transfix the cornea with the instruments commonly employed for that purpose; and that spasm of the recti muscles, induced by that force, compressing the iris between the hard lens and the side of the knife, and occasioning inflammation of that membrane, has been the most frequent cause of an unfavourable result of the operation. To obviate these inconveniences, Mr. Scott has invented a new knife, the utility of which, he states, he has tested in a great number of cases.

The cornea-knives, usually employed, not only increase in thickness and in width from point to heel, to fill up the aperture they make in the cornea, as they traverse the anterior chamber, and thus prevent the escape of the aqueous humour, but their width is also equal to the radius of the cornea, so as to make a section of that size in the membrane; and this is done by thrusting this wedge-shaped instrument through the cornea. Now the force necessarily employed for this purpose tends to turn the eye inwards, obscuring from view the inner margin of the cornea, and rendering it difficult to puncture the cornea close to the sclerotic edge, and frequently causing the section to be too small for the escape of the cataract. If this inversion of the eye is opposed by pressure on the nasal surface of the globe, the aqueous humour is apt to escape, and the iris is in danger of being wounded; or even if the iris is uninjured, spasm of the muscles is occasionally produced, endangering the escape of the vitreous humour.

"Sometimes the spasm thus induced will not subside after the extraction of the cataract, and then the iris may be pressed forward and prevent the closing of the flap of the cornea; under these circumstances, it is necessary to puncture the hyaloid membrane and allow a small quantity of the vitreous humour to escape, which will relieve the spasm, unless it should subside spontaneously, after waiting a reasonable time for the purpose." Sometimes, when the vitreous humour escapes, a portion of the hyaloid membrane may be left protruding through the section of the cornea, when it must be returned by the silver end of the curette.

A needle can be introduced into the anterior chamber without difficulty, and retained there for some time without the escape of the aqueous humour; hence it occurred to Mr. Scott, that if a knife could be constructed that might be introduced into the eye with as little force as is necessary for the introduction of the needle, and of such shape as would complete the section of the cornea without danger of wounding the iris, the difficulties and the risk attending the operation would be most materially lessened. In the usual way of operating, the knife cuts its way *into* the cornea, which requires considerable force, but Mr. Scott's *knife* is introduced into the anterior chamber without any further division of the cornea than is necessary for the purpose of its introduction, the section of the membrane not being commenced until both sides of the cornea have been punctured; and the knife is of such a shape, and is then so situated, that there is little danger of the iris falling forward before its edge.

The following is the description of the knife employed by Mr. Scott. 'The back of the knife describes the sixth part of the circumference of a circle, the radius of which is ten lines. The chord of the arc formed by the back of the knife, is, of course, also ten lines in length, being equal to the radius of that circle; it is therefore greater by four lines than the diameter of the cornea, and the blade is consequently quite long enough to complete the section of that membrane without difficulty. The knife is two lines in width at the heel, whence it gradually tapers to the point; it also increases uniformly in thickness as well as in width from point to heel, so as to occupy completely the aperture it makes in the cornea, for the purpose of preventing the escape of the aqueous humour."

In making the upper section of the cornea with this knife, it is to be held in the usual manner, the cornea punctured on the temporal side, and the point of the knife carried across to the nasal side, till it reaches the nasal canthus of the orbit; its cutting edge will then be so far beyond the pupillary margin of the iris that it cannot be readily divided in completing the section of the cornea. The point of the knife is then to be carried upwards, the handle being slightly inclined in the opposite direction. The section of the cornea on its nasal side will now be complete, a small portion of the upper and outer part only remaining to be divided; and this is readily done on the withdrawing of the instrument.

If the case go on favourably after the operation, the patient will scarcely complain of any pain; there will be some soreness and uneasiness, which will be relieved by a discharge of tears. It is necessary to cleanse the margins of the lids with a rag and warm water occasionally, as they are liable to become agglutinated by a secretion of mucus; bathing the lids frequently with warm water will often alleviate any pain that comes on after the operation. Should the pain be very severe, it may be necessary to give a full dose of opium.

It is a very common practice to take blood from the arm both before, and in the evening after the operation, for the purpose of preventing any inflammation; Mr. Scott, however, asserts that in fifty cases of extraction performed at the Ophthalmic Hospital, taken in succession, he has not had occasion in a single instance to abstract blood either before or after the operation. It is evident that the indiscriminate abstraction of blood from the feeble and aged persons who are so frequently the subjects of cataract, instead of obviating the occurrence of inflammation, will rather tend, by reducing the patient's powers, to prevent the closing of the section by the first intention, and thus induce the suppurative process, which will be very liable to be attended with violent inflammation of an asthenic character, that it will be very difficult, if not impossible, to control in this reduced state of the system.

The description of the various forms of cataract is plainly and sensibly written.

Researches on the Decomposition and Disintegration of Phosphatic Vesical Calculi, and on the Introduction of Chemical Decomponents into the Living Bladder. By *S. Elliott Hoskins*, M.D.

It has long been a desideratum to discover some agent sufficiently powerful to act directly on the stone while in the bladder, and at the same time so mild as to produce no irritation of the tissues of which the bladder is composed. Hitherto it appears to have been the object to act on calculi by *single* elective affinity only; that is, to dissolve the base before it is disengaged from its associated acid. Dr. Hoskins, however, attempts to arrive at the proposed end by bringing into play *complex* affinity; that is, to find an agent, the base of which shall be so attractive of the acid of the calculus, as to withdraw it from its allegiance; whilst the acid of the agent unites with the basic ingredients of the calculus, to form with them salts of easy solution.

The facility with which salts of lead decompose the phosphates seemed to point them out as agents well fitted for the proposed purpose. On immersing, however, fragments of phosphatic calculi in solutions of neutral acetate of lead, no chemical action was discernible.

According to Dr. Prout, fluids containing malic acid possess peculiar powers in arresting the deposition of the phosphates. From this circumstance, and also on account of the solubility of the salts which malic acid forms with the bases of these calculi, viz. magnesia, lime, &c., Dr. Hoskins was led to make trial of a

malate or super-malate of lead. To obtain this, a watery solution of neutral acetate of lead was added to cider-vinegar, or *cidre-aigre*, till precipitation no longer took place. The liquid, on being filtered, was clear, devoid of acidity or acrimony, and possessed a pleasant sweetness, unmingled with any metallic astringency.

On immersing fragments of phosphatic calculi in the liquid thus formed rapid chemical action ensued, visible to the naked eye. On suspending a fragment of fusible calculus by means of horse-hair, in a test-glass, containing the fluid, it became at once involved in a white cloud, from which a continuous stream of precipitate gravitated to the bottom of the glass; this precipitate was chiefly phosphate of lead. After the lapse of half an hour, the calculus was found to have lost weight. This was an important fact, without which it might have been supposed that decomposition of the solution alone had given rise to the precipitate. The liquid thus formed from the *cidre-aigre* was, however, objectionable in a practical as well as in a scientific point of view, on account of its colour, odour, and indeterminate strength. It became therefore desirable to attempt the formation of some definite salt, of analogous composition, which, by solution in water, should form a decomposing agent, of a strength which might at all times be depended on, capable also of being varied according to circumstances.

After many experiments, the salt selected was the nitro-saccharate of lead, formed by dissolving a portion of pulverized saccharate of lead in a sufficient quantity of cold dilute nitric acid. The solution, on being filtered and gradually evaporated, yields a quantity of perfectly transparent, amber-coloured crystals, in the form of regular hexagonal plates or prisms. One grain of this salt, moistened with five drops of pure saccharic acid, and dissolved in a fluid ounce of distilled water, formed a blank liquid without any astringency, although it possessed slight acid re-action. It acted with rapidity on various specimens of phosphatic calculi, forming around each, at the moment of immersion, a dense nebula, from which a white precipitate subsided. Chemically speaking, this was the most active agent yet experimented with, whilst its sensible character was so mild, as to be tolerated with perfect impunity by the urethral and conjunctival membranes.

Having ascertained the effects of these salts of lead on phosphatic calculi, out of the body, the next point to be determined was the effect likely to be produced by the introduction of their solutions into the living bladder. Some fear might perhaps be entertained with regard to the production of colica pictonum;—this is to be guarded against by adding to the salt of lead employed, a small quantity of its own proper acid, or a few drops of pure acetic acid, *previous* to the addition of water. In a chemical, as well as a therapeutical point of view, this is essential: 1st, as it secures the perfect solution of the salt, and its consequent activity as a decomponent; 2d, the superaddition of acid secures against the formation of any of the deleterious carbonate.

In order, however, to be perfectly satisfied as to the comparatively innocuous character of these salts, Dr. Hoskins undertook a number of experiments with them on sheep, introducing the fluids into the bladder daily, for several weeks consecutively, and having the animals killed at different periods during the investigation. In none of the sheep experimented on, were untoward symptoms excited, either general or local. Experiments also of a personal nature were resorted to, and contributed to the conviction that no evil could accrue from the continued introduction of saturnine solutions into the bladder.

Three cases are related in which these injections were employed, the bladder being in an irritable state from the presence of calculi; these cases, though very unfavourable for testing the lithontriptic powers of the solution, afforded evidence of its being neither irritating nor injurious, when introduced with proper restrictions into the bladder.

Spirit of the Foreign Periodicals.

Last Illness of Dr. Osann: Curious Mistake in Diagnosis.

The name of Dr. *Osann* has been well known of late years, in German Medical Literature, as being associated with that of his father-in-law, the venerable *Hufeland*, in connexion with one of the most successful journals on the Continent. His case will be found very interesting, and may suggest some useful hints to the practising physician, to warn him against neglecting any means of examination, before he forms his diagnosis.

For many years of his life, he had been subject to frequent attacks of inflammatory catarrh: for these, he was usually bled, with great relief to all the symptoms. The cough was often most harassing and severe, and the sputa were occasionally semi-purulent, conglobate, and streaked with blood. When this was the case, there was generally present a good deal of febrile irritation of the whole system, accompanied with emaciation of the body, tendency to night sweats, &c. As might be expected, serious apprehensions were entertained by many of his friends of the existence of tubercular disease in the lungs. His uncle more than once said, that he regarded him as a *Candidate for Phthisis;* and the patient himself took nearly the same view of his case. The frequent returns of bronchial irritation, the copious expectoration of suspicious-looking sputa, the occasional hæmoptysis, the uneasiness and darting pains in the chest, the hectic irritative fever—these symptoms might well be deemed declaratory of tubercles of the lungs.

But the truth of this diagnosis could not be determined by an exploration of the chest; as the Doctor very strangely refused, on all occasions, to have either percussion or auscultation tried in his case! He said that he felt convinced that neither of these means could be of any real service in directing the proper treatment. "I am always relieved," he said, "by the adoption of antiphlogistic remedies. What good can auscultation do? Supposing that there is some organic alteration in the lungs, the discovery of that should not influence our treatment." So much for a doctor's want of faith, in what he may prescribe to others.

It here deserves to be especially noticed, that none of his medical friends ever entertained a doubt as to the seat of the malady being in the lungs, or for one moment suspected that the heart was at all diseased. And, indeed, how could they? —for there never was any tendency to palpitations, syncope, intermittence of the pulse, dyspnœa on going up stairs or walking quick, &c.

For some time before his decease, Dr. *Osann's* health appeared to be better established than it had been for several years. He regularly attended to his duties at the University, and seemed to be not at all incommoded even by extra fatigue, although the weather was very cold and trying at the time. On the evening of the 11th of January, he left his home to visit the Dean of the Medical Faculty, Dr. *Jungken;* but, before he could reach the house, he was suddenly taken ill in the street, and carried into the nearest shop.

I found him, says the reporter, supported against the wall, breathing with great difficulty, and harassed with a violent harsh cough. I opened a vein in the arm, but scarcely any blood flowed; and in a minute or two afterwards, life was extinct.

The Dissection was performed by Professor *Frorief*, so that we may fully rely on the perfect accuracy of the following report.

On opening the cavity of the chest, about two or three ounces of a reddish-coloured serosity were found within. At various points, there were old firm adhesions between the costal and pulmonic pleuræ. The parenchymatous tissue of the lungs was crepitant on pressure, sufficiently permeable to air, and of a normal colour, being reddish and of a marbled hue in front, and darker and more purplish behind. In no part were there any traces of extravasated blood, or of hepatization, or tuberculous deposit.

After the most careful examination, nothing, except a minute calcareous concretion—not much bigger than a pin's head—was discoverable in any part of the lungs.

The Cartilages of the Larynx exhibited the appearances of incipient ossification. The mucous membrane of the trachea was more congested than in health; that of the bronchi was quite normal in every respect.

There was no fluid in the pericardium. The heart was evidently considerably enlarged. The hypertrophy was confined to the left ventricle, the walls of which were upwards of an inch in thickness, and very hard and resistant. Its cavity was partly filled with dark-coloured, coagulated blood. The mitral valves were indurated at several points; the aortic valves also were similarly affected.

The real and essential disease, therefore, in this case, was (says Dr. *Breyer*, the narrator,) hypertrophy, with dilatation, of the left ventriele. This discovery certainly surprised all the medical attendants not a little, as the very existence of any cardiac lesion had not been once suspected, either by the patient himself, or by any of his professional friends.

It may be here asked, what was the immediate cause of the sudden attack which so rapidly proved fatal?—was it spasm of the heart? or was it cerebral hæmorrhage? We cannot positively determine this question, as the cranium was not examined: but the absence of all apoplectic or paralytic symptoms may be thought sufficient evidence to negative the latter idea.—*Journal de Hufeland.*

Remarks.—The preceding is certainly a very curious and instructive case, as showing—if all the data of the report have been detailed with sufficient accuracy—that the rational symptoms of confirmed pulmonary disease may be present, and yet the lungs may be not at all organically affected. Certainly these symptoms must have been obvious and well-marked in this instance; else an old experienced physician, like *Hufeland*, would not have pronounced his opinion so unhesitatingly; not to mention the unanimous diagnosis of all the other medical attendants.

But the difficulties do not cease here. It is expressly said, that the patient never exhibited any of the usual symptoms of cardiac disorder—palpitations, breathlessness on exertion, irregular pulse, &c. We are however to bear in mind that it is doubtful whether the fatal event at last is to be traced to the state of the heart—for the morbid changes in this organ were far from being considerable, or incompatible with a prolongation of life—or to a cerebral lesion. How far all the symptoms can be fairly attributed to the hypertrophied state of the left ventricle, and the slight thickening of the aortic and auriculo-ventricular valves, it is not easy to determine. Whatever opinion is formed on this and other points of its history, the case is a very interesting one; and not the less so as showing the insufficiency of the merely rational symptoms, under certain circumstances, to direct the physician to a correct diagnosis. How strange that it remained for a medical man to object to the use of auscultation in his own case; and that in this very case a serious mistake was committed by neglecting the valuable assistance of the stethoscope!—(*Rev.*)

Death of M. Chervin.

This enthusiastic and indefatigable physician has, after a life of hard toil and poor reward, been recently gathered to his fathers. His countrymen seem to regret his loss more than either he, or any of his immediate friends, could have supposed. As a matter of course, several *eloges* have been addressed to his memory, and all now join in paying respect to his many virtues and talents. "There are some men," says one of his admirers, "whose merits are not discovered, until death has taken them away. Little known, and almost quite overlooked during their lives, an affectionate attention is drawn to their names after their decease; then only, it is found out that a truly good and great man *has* existed in the midst of us. Others again, who may have been surrounded with distinctions and applause while on the busy scene, no sooner disappear than they are entirely forgotten, and perhaps are never mentioned again,—like the characters of a play, which are not thought of after we leave the doors of the theatre. If we examine a little into the causes of so marked a difference, we shall most probably find that it is in an especial manner to the amiable qualities of the mind, and to the moral virtues and graces of the character, that our human sympathies are most strongly attached; and that the gifts of intellect, however brilliant they may be, may excite our admiration, but they do not win our love. There is no grace in the character, that more deservedly and generally gains the applause of mankind than unselfish zeal and devotedness of pursuit; but, alas! its value, nay its very existence, is often scarcely known, until the person is taken away from the scene of his labours."

M. *Chervin* was a memorable example of this observation. His whole life was an unceasing struggle, nobly undergone, for an object of universal utility. Fully aware of the difficulties of the pursuit in which he engaged, he yet devoted all the energies of his soul to its unwearied prosecution; he never flagged nor failed in following it out; he spent his time and his property in seeking to arrive at the truth; and at length, as he drew near to the end of his journey, it was with his eye fixed on his favourite theme, that he breathed out his patient spirit. In exchange for such toilsome labours, and for the many dangers, privations, and distresses to which he voluntarily exposed himself, he sought not for that applause of the multitude, which is at once often so hard to win and so difficult to keep. With an entire devotedness of soul to the cause which he had embraced, he seemed to regard himself as the soldier of a single idea, for the triumph of which he was willing to make every sacrifice, alike of private ease and public fortune. He had an enthusiastic passion for the discovery of *truth;* sometimes indeed he carried it to an extravagant length; and it has even been alleged that he would not hesitate to speak *untruths* in its defence! Like most ardent seekers after a single object, he often encountered the shafts of envy and ridicule. By many he was regarded as a visionary in his dogmas, and as a most importunate *bore* in forcing them upon others. Hence it was that not unfrequently he was advised, even by his own friends, to begin to mind his own private affairs, and not bother himself so much with great objects that only interest governments and nations. But M. *Chervin* was one of those men, whom an instinctive feeling, more sure and powerful than the calculations of reason and vulgar prudence, engages and maintains in an invariable path, but who are often foolishly thought by their cotemporaries to be blind and visionary, because forsooth they look on certain topics with different eyes from the bulk of mankind.

It was to the noble and elevated moral feeling, that ever distinguished M. *Chervin's* career, his disinterested love of whatever is good and true, and his unquenchable and persevering devotedness of purpose, that we may attribute the universal regret that was manifested, by all classes of the profession, at the announcement of his death. He never possessed any fortune, nor rank, nor

titles, nor even any high and influential friends; and yet he was respected wherever he went, and commanded the admiration of all our most scientific bodies.

His whole life was devoted to the examination of the Yellow Fever. To discover the laws that regulate its origin and diffusion, to determine whether it be contagious or not, and to point out the sanatory regulations and precautions most necessary for the arrest of this destructive pestilence—such was the great object of all his labours. It was about 1814 that he commenced his laborious and often hazardous inquiries. In the course of that year, he started for New-Orleans, with the view of making himself personally acquainted with every thing appertaining to the fevers of that unhealthy locality. He remained upwards of eight years in the United States, and in the course of that time explored not only the entire extent of sea coast from the Gulf of Mexico to the shores of New-England, but also the various Colonies and Possessions of the English, French, Dutch, &c. in the West Indies as well as in America. No labour or fatigue ever deterred him from following out his enthusiastic researches, and the minuteness of detail, with which he examined every locality, often excited the surprise and admiration of the resident medical men. With his trunks stored with manuscript descriptions and reports of all kinds, he returned to France, in 1822, to communicate the results of his arduous researches to his fellow-countrymen.

He had scarcely reached his native shores, before he learned that Barcelona and other parts of Spain were suffering from an invasion of what was considered to be genuine yellow fever. The alarm was very general that the pestilence would traverse the Pyrenees and carry its ravages into the heart of France. The Government had already sent a Commission, composed of some of the most eminent physicians of Paris, to examine the disease on the spot, and to suggest what measures should be adopted to check the diffusion of the fever. The result of their inquiries was to favour the idea of its contagiousness; and forthwith various sanatory regulations of a more stringent character than usual were rigidly enforced along the whole line of the Spanish frontiers. M. *Chervin*, whose opinion on this subject was diametrically opposed to that of the Government Commission, thought it a good time to mix himself up with the discussions that were going on everywhere. True however to his invariable practice of examining everything with his own eyes, and unwilling to trust merely to the reports of others, he at once set off for the seat of the disease. Not a spot in Spain escaped his inquisitorial visit. He was engaged in this inquiry for nearly three years. When he returned to France in 1825, he addressed a petition to the Chamber of Deputies, calling upon them to re-examine the question as to the Contagiousness of the Yellow Fever, with the view of relaxing the severity of the Quarantine laws. As a matter of course, the petition was accompanied with a numerous list of documents, illustrative of the important question at issue. The Minister of the Interior called upon the Royal Academy for their opinion upon this grave subject. A committee of nine of its most distinguished members was accordingly appointed to examine all the papers that had been submitted by M. *Chervin*, and to report upon the conclusions which he sought to establish. The inquiry lasted for nearly a twelvemonth. The report was most flattering to M. *Chervin*, and was strictly in accordance with his views—that the existing Quarantine regulations were far more stringent than there was any occasion for, and that the project of building any new lazarettoes was quite unnecessary and most injudicious. This report met with vehement opposition, not only in the Academy itself, but also out of doors.

The Government itself seemed to be rather dissatisfied; for it was generally understood that the project of having more lazarettoes had been already fixed upon. The members too of the Academy, who had formed the official Commission of inquiry in Spain, naturally enough exerted themselves with all their energy against the recognition of views, directly opposed to those which they had pub-

lished. The Academy certainly did not exhibit a very dignified example of independent feeling on the occasion; for, on finding that their report was not acceptable to the powers that be, they consented to remodel it, and to abate a something of their decided approval of M. *Chervin's* suggestions. He manfully reclaimed against this exercise of official power; but without effect.

While an animated controversy was going on among the *savans* of the French metropolis, the disease (Yellow Fever) was raging at Gibraltar. M. *Chervin*, with his accustomed promptitude, determined to proceed thither without delay. He applied to Government to be sent out in an official capacity, at the same time requesting as a favour that another physician—whose views were entirely opposed to his own—might be appointed to accompany him. The request was acceded to; but, instead of one, two companions were named—M. *Trousseau* by the Government, and M. *Louis* by the Academy. They arrived at Gibraltar in November, 1828.

From the period of his return to the time of his decease, M. *Chervin* repeatedly brought the subject of the Quarantine Laws of the country under the examination of the Academy—of which he became a member in 1832—advocating, upon all occasions, the necessity of a gradual relaxation of the existing enactments.

It appears that, towards the close of his life, his pecuniary circumstances were much straitened. He had been long affected with an organic affection of the heart, and had an apoplectic seizure about two years before his decease. He died under the hospitable roof of a friend, on the 14th of August last. The fatal attack seems to have been bronchitis, induced by the cold weather that prevailed at the time. His will is curious; it runs in these words:—

"I have nothing to leave. All that I received from my parents, and whatever I made by a tolerably lucrative practice in the Island of Guadaloupe, has been spent in carrying out those inquiries, in which I have been engaged for the last 27 years, on the origin and mode of propagation of the Yellow Fever, with the hope of inducing the several governments of Europe to remodel their sanatory regulations.

"I have devoted not only everything I possessed to this laborious and expensive undertaking, but also no inconsiderable portion of funds which have been generously supplied to me by the philanthropic assistance of friends. My labours in this field of inquiry having been the means of diffusing important information, which has benefited my country not a little, I venture at this solemn moment to express a hope that France will re-imburse those of her patriotic citizens, who have enabled me by their liberality to carry out the enterprise, in which I was so long engaged.

"I owe certain sums to my landlord for the rent of my house, and to the printers of my writings for work done. I trust that the Minister of Trade may be pleased to purchase the impression of several manuscript papers on the subject of the Sanatory Laws and Quarantine Establishments of the country.

"My desire is that my honourable friends MM. *Reveille-Parise* and *Londe*, Members of the Royal Academy of Medicine, may be pleased to charge themselves with superintending the publication of these writings. To them I leave all my books and papers."

We trust that this touching appeal to his country will be responded to as it deserves.

M. Reveillé-Parise on Health and Disease.

The perpetual Secretary of the Academy of Medicine is a learned and very amiable man. Most of his writings have a philosophic and moral cast of thought, and will therefore be more valued by the lover of contemplative study, than by him who is engaged in the practical duties of a fatiguing profession. It is well,

however, occasionally to have our attention diverted from the ever-recurring minutiæ of special disease, and let it muse for a time on the generalisations of a more comprehensive pathology.

"Although the causes of diseased action apppear, on first consideration, to be almost innumerable, it is nevertheless quite possible to reduce them all to three principal categories—Wounds, Poisons, and excess of Excitement, moral or physical. Now these causes may act either separately or simultaneously; the latter case is the most frequent, as well as the most dangerous. The reason of this is obvious. Man avoids as much as possible the reach of the first two; but often, too often, he voluntarily exposes himself to the hurtful influence of the third—forgetting, as he blindly does, that although he may succeed in augmenting the intensity of pleasurable excitement by the use of undue stimulants, he cannot increase the organic capacities of his constitution to bear it without injury. The reckless search after pleasure is the rock on which health is most frequently shipwrecked. It is the perpetual *besoin* of exciting sensations, which perhaps have already become blunted from previous inordinate stimulation, that is the root of very much of the worst suffering to which civilized life is subject. This is the secret cause of the corrosive influence of sibaritic indulgence and sensual pleasures. The body is more excited than Nature intended it should be; and, by a law which she herself has impressed upon the system of man, the excessive gratification of any appetite induces an increased desire for satisfying its demands, while, at the very same time, the powers of the instrument are proportionally diminished. And yet no experience will convince mankind of the truth of all this. Every day we may see proofs of the danger of inordinate organic excitement; but, alas! these proofs are heedlessly passed by all of us, as if the danger could never reach ourselves. Let us for a moment simply ask, what is the cause of such infatuation? It is two-fold—on the one hand, there is the desire for continual and ever-renewed excitement; and, on the other, the circumstance of the dangerous consequences of such over-excitement being not immediately felt. The penalty is not paid at the moment; and weak man shuts his eyes to the future—"Because sentence against an evil work is not executed speedily, the heart of man is set in him to do iniquity." *Montaigne* has wittily remarked, that the reason why a sane man will not put his hand into the fire, is only because he knows that he should *at once* suffer for his folly. Alas! this is not the case with the equally real and dangerous experiment of indulging unbridled passions; although the penalty, it is well known by us all, must be suffered at some time or another.

How truly has *Plutarch* said, that "We, in our ignorance, call, by the name of *delay*, the time that divine justice is but lifting its hand to give the heavier blow." This beautiful reflection is strictly applicable to the laws which regulate the organism of man. There is indeed a *Nemesis* which, like the fabled one of antiquity, may delay its vengeance for a time, but which will assuredly not allow the guilty to escape altogether. And how can it be otherwise? The punishment is the result of the very laws, which rule the organism; health is the blessing of obedience to them, and suffering and disease are the necessary consequence of their violation.

How often do we wilfully forget that there is a monitor within, appointed by Nature herself, to give us warning of the coming danger, when the *physiological law*, which we are now endeavouring to expound, is infringed or disobeyed—we allude to the sensation of Satiety! The very power, which the economy enjoys to habituate itself to different impressions, is like a remedy that is held in reserve by Nature against most of those accidental evils, which would otherwise be induced by various external agents. In one case it may act as a mitigator of pain, the perception of which becomes less acute, whenever it has lasted long; while, in another case, it serves as a counterpoise to the ever-recurring desire for renewed excitement. However this may be, we certainly find that, when excitement

reaches to a certain degree, or is repeated a certain number of times, the sensation induced becomes gradually more and more blunted. The piquancy of novelty, and the freshness of the impression, become less and less, until they finally cease; and then, if the stimulation be continued, a positive disrelish, or even disgust, takes the place of what was once a pleasurable sensation. What a benevolent arrangement is this of Nature to prompt us to abandon, or at least to moderate, what otherwise must eventually injure! And yet how often is it wilfully neglected; and foolish man resorts to merely increasing the dose of the stimulus, in the vain hope of renewing his jaded appetites. Thus it is that the tone and natural vigour of certain organs are gradually wasted, until perhaps they cease to do their duty at all, and death is the result of the suspension. So many errors are daily committed under the impression that, because no injury is directly or immediately sustained by the individual who disobeys the laws of nature, he escapes altogether. The penalty, although tardy, is sure to be demanded, and the body will ere long evince the fruits of the disobedience.

We may therefore assume it as a most incontrovertible fact, that the intensity and continuance of impressions, even with the tolerance acquired by habit, cannot be prolonged beyond a certain degree. They are sooner or later arrested by the penalty of suffering. But there are men, and these not a few, whom even this penalty will not deter from their infatuated course; they cannot endure the feeling of *ennui*, and they must have excitement at any cost. How true is this of the smoker, the drunkard, and the debauchee. The same remark holds true of the passions of the mind. There is a strict alliance and sympathy between the disorders of the flesh and of the spirit.

Rouchefoucauld, with his characteristic severity and point, has said that, 'although there are many women who have never had an intrigue, there is not one who has had only one;' and a lively writer of the present day very truly remarks that, 'the punishment of those who have loved women to excess, is, that they never cease to love them.' Such is the force and tyranny of inordinate and irregular indulgencies.

Another, not less striking, consequence of the irrepressible desire, or *besoin*, of the system for renewed stimulation, when any organ has been excited beyond a just degree, is that the degree of the physical impression is ever dependent upon the state of the organism. Not only is there something or another always wanting—for he that has ten *besoins* is not happy, if nine only be gratified—but the degree of enjoyment, actually obtained, is always below what was anticipated and hoped for.

Often has the philosophic physician an opportunity of observing the unhappy struggle between the dreams of fancy and the realities of life! Man is so constituted that he should never pitch his expectations of pleasure very highly; for assuredly he will be disappointed when the very object or attainment, for which he may have long panted with most feverish excitement, is given him to enjoy. The immediate organic effect will be deceptive, and at best it must be transitory; the pleasure *felt* will never equal the pleasure that has been *imagined*, more especially when the first edge of our sensations has once been blunted. *Cæsar* said of the empire of the world, 'Is this all?' and we read that *Vespasian* expressed utter weariness at the length of his triumph. It is not in worldly hopes and earthly pleasures that the mind of man can ever obtain its full draught of satisfying enjoyment; it must soar above the things of time, and hold communion with objects, lofty and immortal as itself. Let not the reader suppose that this train of thought is quite foreign to the pursuits of medical life: far from it. Unless the physician has learned to mark and watch the workings of the soul, and their intimate and often immediate connexion with the curious machinery of the body, he has studied but one half of his profession; and he will therefore often fail to give that relief to suffering humanity, which should ever be the great object of his thoughts to administer.

* * * * * * *

It was a saying among the ancients that *acute* diseases were sent from Heaven, and that *chronic* ones came from ourselves. There is a good deal of truth in this Sacro-medical axiom. The arrow is winged from above; but it is our own hand which poisons it. We thus see that in all our inquiries we must bear in mind the nature and constitution of man, the vital acts of his body, and the laws which regulate and direct them. When we remember how very few of those persons, who have once given themselves up to violent and inordinate excitement, stop at the point which prudence dictates, we cannot be surprised at the amount of bodily and mental suffering that exists among all classes of society. Frail man! urged on by the instinctive law or attribute of his system, that every organ which is over-excited becomes thereby more excitable, he allows himself to be led along into excesses, the hurtful effects of which are, although slow and perhaps unperceived, infallible and unerring. Over-excitement—*mater sæva cupidinum*—is the prolific source of the worst diseases to which his body is liable. To say metaphysically that 'the flesh is weak,' is to express at the same time the *besoin* of the organism for excitement, and the danger of this being carried too far; and, if the flesh is weak, 'the spirit is not always ready;'—in other words, the instinctive impulses are often too much for the force of the will and intellect to withstand.

The preceding observations are as applicable to excessive study and to over-violent or too-protracted bodily exertion, as to inordinate stimulation of the merely organic functions. The ascetic devotee of science or literary pursuits may transgress the laws imposed by Nature, quite as much as the reckless drunkard or the profligate debauchee. There is a passion for knowledge, that, when carried to excess, may damage the health as deeply as indulgence in more ignoble pursuits. The physiological law is the same in both cases; and hence the violation of this law is followed by similar consequences. The brain may be over-excited by intense or over-prolonged study, just as the stomach is apt to be by excessive or renewed potations.

But let us stop here for a moment and reflect how beneficent are the arrangements of Nature. Although the over-working of the mind may be followed by exhaustion for a time, it never loses its taste for the delights of scientific and literary pursuit; the very indulgence, if not carried too far, begets a keener relish for more; and thus, till the close of life, it may be ever renewing the delights and recreations of its youth and early associations. How different from the increasing *ennui* and distaste to the jaded appetite of the sensualist! Each year takes off a something from the *verve* of his former desires; every pleasure is stale; the perceptions are blunted; and the very excitement, such as it is, is inevitably followed by increased exhaustion, and perhaps by actual suffering.

M. *Parise*, after commenting very eloquently on the ill effects of mental anxiety and disquietude on the state of the bodily health, very justly remarks, that "certain diseases, as aneurisms of the heart, cerebral congestion, various morbid affections of the nervous system, insanity, &c., are infinitely more frequent now, than they were in former ages, especially in large cities. All this is more from mental than even from corporeal dissipation. Unless the passions are more than usually strong, and the judgment is very weak at the same time, most men find that, as they advance in years, they must put a check upon indulgence in such sensual excesses, as manifestly injure their health. But this is not the case with the o'ermastering feelings of ambition and avarice. As years increase, these increase; and the very food, on which they feed, but whets their appetite for more. Age cannot check it; disease and infirmities seem to make no change; and it is Death only that can say, 'Hitherto thou shalt go, but no further.'

* * * When *Montaigne* says, 'Defiez-vous de la trahison de vos plaisirs,' he but expresses, in another form, an important physiological maxim,

and illustrates the truth of what I have already remarked, that medical science only renders sure and positive what philosophy suggests as probable. Both alike warn us of the dangers of transgressing those rules, which Nature has appointed; showing us, on the one hand, how our bodily and mental comfort may be secured by obedience, and on the other, how inevitably we are made to suffer by acting in opposition to her arrangements."—*Gazette Medicale.*

ORTHOPÆDIC CONTROVERSY IN PARIS.

A very angry dispute has, for some time past, been going on between M. *Guerin* —*the* orthopædist (par excellence) of the French metropolis—and M. *Malgaigne* and some other members of the French Academy, relative to certain statistical reports of alleged cures of various deformities, communicated by the former gentlemen to the Bureau des Hôpitaux. Many of his *confreres* had long suspected that the doctor of the establishment of La Muette, (near Passy, we believe,) in his overflowing admiration of subcutaneous Myotomy and Tenotomy, must surely have somewhat exaggerated the marvellous success which attended all his operations. Wry-necks, crooked backs, bent knees, club-feet, stiffened fingers and toes—not to mention squinting and various other kinds of deformity—seemed to be got rid of in a twinkling, and scarcely ever did we hear of a case that was not cured. Our readers are aware that M. *Guerin* is not only very adroit, but also most persevering and courageous, in carrying out his brilliant 'decouverte' (invention, we should rather call it.) of dividing muscles and tendons, without making more than a puncture through the integuments. On one occasion he divided no fewer than forty muscles or tendons in a single case, and the result was, as a matter of course, that the patient was 'parfaitement gueri.' The success of his operations was so unvarying, that many of the medical men of Paris began to have their doubts as to the complete veracity of the reports; and M. *Malgaigne* in particular seems to have set about a strict inquiry, with the view of ascertaining the exact state of the question. His statements are certainly far from being in accordance with tho assertions of M. *Guerin.* Many of the cases reported as cured have been, it is said, scarcely, if at all, benefited by the treatment adopted at La Muette; and, in several instances, the same patient figures more than once on the successful list. We need scarcely allude to another charge that has been brought by some against M. *Guerin.* It is alleged that many of the gratuitous patients, sent by the Bureau des Hôpitaux to the Doctor's Establishment, have been made to pay for the plaster-moulds that have been taken of their deformities and the apparatus which have been supplied, and that M. *Guerin* has been no loser on these occasions. As we have no opportunities of knowing the truth of this charge, it is better to keep it entirely out of our view, and to confine ourselves solely to the medical part of the accusation. We were not, we must confess, at all surprised when we first read of the charge of bad faith being brought against the orthopædic doctor.

There has always been such extravagance in his published reports, such unheard-of success in every thing that he set his hand to, such marvellous cures effected by a *coup-de-main*, and withal, such silly affectation of scientific profundity, that we long ago settled in our own minds that all that he said was not gospel. That his reports of successful cases have unquestionably been *inaccurate*, cannot, we suppose, be now denied. He may indeed have imposed upon his own credulity, and it may be that thus he has been unconsciously led to mislead the minds of others by his statements. But then there has been all throughout so loud and magniloquent a boasting, that we almost hesitate to give him the benefit of this charitable interpretation.

While unwilling to exculpate M. *Guerin* from, at least, the charge of most

unworthy indiscretion, we must lay part of the blame to the charge of the Royal Academy itself, as some of the practices, connected with the proceedings of this learned body, have always appeared to us to open the door for much accidental, if not wilful, misstatements. We allude more particularly to the common occurrence of members reporting cases, while still under treatment. Nay, not only this; but, every now and then, we read of successful operations being pompously announced on the very evening perhaps of the day, on which they were performed. Sometimes indeed the case is rendered still more dramatic, by the patient being exhibited to the Academy before and after the surgical treatment—all seemingly for the purpose of giving the operator, and the other members, an opportunity of saying something about themselves.

M. *Guerin*, as might be imagined, is especially fond of such exhibitions. For example, we find, in the account of the proceedings of the Academy on the 18th of July last, that he exhibited a patient, affected with lateral deviation of the spine, on whom he had a few days before performed the operation of tenotomy. "I have," said he, "in this case, divided the *longus dorsi* and part of the *sacro-lumbaris* on the right side, and the spinal portion of the *longus dorsi* on the left. As the patient, at the present moment, wants part of the muscles that are necessary for the act of standing, he requires to be supported." "The section of these muscles," the learned doctor continued, "not proving quite sufficient in itself for rectifying the deformity, it is necessary in this case to have recourse to an apparatus, for the purpose of keeping the parts in a normal attitude. Here, therefore, we must act, as we do in cases of club-foot, where we first divide the tendons that are at fault, and afterwards retain the limb motionless and in a proper position for some time. I repeat that this patient is not yet cured, and that I have exhibited him only to prove how innocuous the operation of tenotomy is, and to show its immediate effects." So much for the *show-man*; now for the remarks of some of his auditors. M. *Bouvier* (a rival orthopædic doctor, we believe) gets up and tells the learned Academy that all that M. *Guerin* has been saying, is mere fudge; that the patient is not a whit benefited by having had his dorsal muscles cut; and that all the *seeming* improvement in the straightness of the back is altogether owing to the person being shown off in the reclining position.

As a matter of course, human endurance cannot bear such scandal. Up starts the operator, and denounces, as so many falsehoods, the observations of his learned *confrere*. At the same time, he gives vent to certain pathological axioms on his favourite subject, which we cannot do better than give in his own words. 1. "I regard," says he, "that lateral deviation of the spine is a sub-luxation of the vertebræ, and therefore remediable only in one way, by effecting a certain reduction of the displacement in question;—2, that this reduction is indispensable to neutralise, in part, the influence of the vertical action of the weight of the head and upper part of the body;—3, that, in this respect, deviation of the spine is exactly in the same condition as club-foot, which does not become rectified of itself after the division of the contracted tendons, but which requires to be kept mechanically extended afterwards for some time."

The analogy, which M. *Guerin* here seeks to establish between lateral deviation of the spine and club-foot, is, in our opinion, quite faulty and fallacious. There is no permanent contraction of any of the muscles in the former disease, as there is unquestionably in the latter. Is not the mere fact of the curvature *redressing* itself when the person is in the horizontal position, and therefore when all the weight of the head and neck is withdrawn from the weak spinal column, a sufficient evidence of this fact? We think it is.

Club-foot is never the result, as far as we know, of weakness in the affected part. But it is unnecessary to say more on this subject at present, as the pathological reasonings of M. *Guerin* are much less likely to be adopted than his manipulations. His practice of dividing some of the spinal muscles has been

tried by one or two surgeons in this country; and, it may be, with a certain amount of success in a few cases. But we must protest against the operation being at all applicable, in a general point of view, to the treatment of lateral curvature of the spine; for the practice is based on erroneous principles, and cannot therefore be successful in the majority of instances.

What has been said above will serve, among other examples, to guard the medical reader from hastily yielding his belief to all the bold assertions of popularity-hunting doctors, whether in our own country or on the continent. There is no end to clap-trap novelties in our profession. On the one hand, we have men who cure all deformities, whether of the eyes, or the limbs, or the back, by cutting muscles and tendons, and would make us believe that Stammering and Deafness may be got rid of almost *instanter* by snipping off a bit of the uvula or tonsils—(by the by, what is Mr. *Yearsley* doing now-a-days?)—and on the other, we have at the present moment quite a bevy of *claqueurs*—including metropolitan surgeons, and Irish-dubbed knights—discoursing most learnedly on the merits of Hydropathy, and hospital physicians and country parsons proclaiming the wonders of Animal Magnetism.

Truly this is the age of rampant quackery; and high time it is that those, who value the dignity of professional credit, should unhesitatingly denounce the folly or the knavery—for assuredly it is one or the other—of all such practices.

Illustrations of Diseases from the Latin Classics.

It has often occurred to us, in our musings on Medical Journalism, that a series of interesting, and at the same time not uninstructive, papers might be written in the way of Commentaries on numerous descriptive passages from the writings of the most distinguished classics of all ages, to show how much light and illustration may be thus thrown, with pleasing effect, on various topics of professional inquiry. No one can have read the works of our immortal dramatist with any degree of attention, without having noted the extraordinary truthfulness of many of his allusions to the workings alike of our bodies and minds, under the influence of disease as well as in the energy of health. Sir *H. Halford*, it is well known, selected a passing remark of Hamlet as the theme for a very ingenious professional Essay; and, indeed, there is scarcely a play of Shakspeare that will not afford more than one such example. But it is not from English writers that we are going to select our quotations; the master poets of Rome are to furnish our examples on the present occasion. It is but fair to say that, for most of them, the reader is indebted to the literary taste of a writer in the Gazette Medicale of Paris. They form the staple contents of an ingenious *feuilleton* article in that well-established periodical. Our chief motive, for introducing them to the notice of our own countrymen, is to exhibit one of the traits of continental journalism, and to show how agreeably some of our French brethren know how to blend literary amusement with professional information. They may fairly challenge our applause, by quoting to us the Horation precept,

> Omne tulit punctum, qui miscuit utile dulci,
> Lectorem delectando, pariterque monendo.

The description of the Plague by *Lucretius* is considered, by the best judges, to be the finest part of his philosophic poem *De Natura rerum*. It is characterised by a strict adherence to truth, and a most faithful narration of all the striking features of this terrible disease. There is no fanciful embellishment, nor exaggerated colouring introduced into the picture. This therefore owes most of its impressiveness to the very simplicity, with which the artist has managed all the

details. In this respect it affords a striking contrast to the more ornate, and consequently the more feeble, portraiture of the plague of Latium given by *Ovid*, in the 14th book of the Metamorphoses.* Let us select one or two passages from the old poet's truthful description. How forcibly does he paint the symptoms of the disease, with his characteristic severity and point, in the following lines!

> Principio, caput incensum fervore gerebant,
> Et duplices oculos suffusâ luce rubentes:
> Sudabant etiam fauces intrinsecus utro
> Sanguine, et ulceribus vocis via septa coïbat;
> Atque, animi interpres, manabat lingua cruore,
> Debilitata malis, motu gravis, aspera tactu.
> Inde, ubi per fauces pectus complerat, et ipsum
> Morbida vis in cor mæstum confluxerat ægris,
> Omnia tum verò vitaī claustra lababant.
> Spiritus ore foras tetrum volvebat odorem,
> Rancida quo perolent projecta Cadavera ritu;
> Atque animi prorsum vires totius, et omne
> Languebat corpus, leti jam limine in ipso;
> Intolerabilibusque malis erat anxius angor
> Assidué comes, et gemitu commixta querela;
> Singultusque frequens noctem persæpe, diemque,
> Corripere assidue nervos, et membra coactans
> Dissolvebat eos, defessos ante, fatigans. *Lib.* vi.

The burning headache, the red suffused eye, the throat ulcerated and oozing out blood, the tongue rough and parched, the corpse-like fœtor of the breath, the prostration of all the vital energies, the sense of anxiety and anguish about the precordia, the constant moaning and hiccup—all these symptoms are powerfully and faithfully delineated. To do the poet justice, it would be necessary to make large and numerous quotations from his graphic description of the pestilence. He describes it as coming from Egypt—that hot-bed of epidemic disease in all ages—and does not forget to tell us, that its invasion is always preceded by an alteration in the state of the atmosphere, by the exhalation of effluvia from the earth, and by the simultaneous operation of certain sidereal influences. He mentions, also, the eruption of gangrenous tumours or buboes in different parts of the body, and the extensive disorganisation of the tissues, where these make their appearance. In the following passage he enumerates with great accuracy, and an almost professional skill, a variety of details, which cannot fail to interest every medical reader.

> Multaque prætereà mortis tum signa dabantur:
> Perturbata animi mens in mærore, metuque;
> Triste supercilium, furiosus vultus, et acer;
> Sollicitæ porro, plenæque sonoribus, aures;
> Creber spiritus, aut ingens, raroque coortus;
> Sudorisque madens per collum splendidus humos:
> Tenuia sputa, minuta, croci contincta colore,
> Salsaque, per fauces raucas vix edita tussi.

The style and diction of *Lucretius* acquire a truly remarkable precision, when

---

* *Lucretius* however has, it should be stated, borrowed very largely from the wonderfully graphic account of the plague at Athens, left on record by the historian *Thucydides*.

he comes to paint the close of the frightful scene. One might almost suppose that the following lines were a translation from a passage in the writings of Hippocrates :

——————— ad supremum denique tempus,
Compressæ nares, nasi primoris acumen
Tenue ; cavati oculi ; cava tempora ; frigida pellis,
Duraque ; in ore jacens rictum ; frons tenta minebat :
Nec nimio rigida post strati morte jacebant,
Octavoque fere candenti lumine solis,
Aut etiam nonâ reddebant lampade vitam.

Ovid, in his well-known description of a pestilence in the 7th Book of his Metamorphoses, tells us that, for several months before its eruption, the weather had been hot, gloomy, and oppressive, the wind being the lethiferous South. At first, the disease was strictly *epizootic*, *i. e.* affecting the lower animals, even to the savage denizens of the forests. The air is described as becoming vitiated with the effluvia from the putrifying dead bodies, which

—————————— dilapsa liquescunt,
Afflatuque nocent, et agunt contagia latè.

At length the pestilence attacks mankind, alike in the country and in towns. We quote the description of the leading symptoms : though vigorous, it has not the minute and truth-like touches of the elder poet.

Viscera torrentur primo ; flammæque latentis
Indicium rubor est, et ductus anhelitus ægrè.
Aspera lingua tumet, tepidisque urentia ventis
Ora patent ; auræque graves captantur hiatu.
Non stratum, non ulla pati velamina possunt ;
Dura sed in terrâ ponunt præcordia ; nec fit
Corpus humo gelidum, sed humus de corpore fervet.

His description would apply better to a case of acrid poisoning, than to one of pestilential fever. Much of what remains in the original is far too fanciful to be at all like Nature. No doctor, in the present day at least, ever heard of fever patients leaving their beds, and rushing to wells, rivers and fountains to quench their intolerable thirst. Some of *Ovid's* drank so much that

——————— graves nequeunt consurgere, et ipsis
Immoriuntur aquis : aliquis tamen haurit et ipsas.

Let us now compare the above descriptions of the disease in the human being with that which the prince of Latin song has given us of the Autumn pestilence among cattle. Hear what he says of the horse, when the invisible foe has lodged the poison in his frame.

Labitur infelix studiorum, atque immemor herbæ
Victor equus, fontesque avertitur, et pede terram
Crebra ferit ; demissæ aures ; incertus ibidem
Sudor, et ille quidem morituris frigidus ; aret
Pellis, et ad tactum tractanti dura resistit.
Hæc ante exitium primis dant signa diebus.
Sin in processu cœpit crudiscere morbus,

Tum vero ardentes oculi, atque attractus ab alto
Spiritus interdum gemitu gravis; imaque longo
Ilia singultu tendunt; it naribus ater
Sanguis, et obsessas fauces premit aspera lingua.*

The last four lines are admirable, and present to the eye quite a picture of the dying animal. The reader will not fail to notice also the description of the state of the skin in the third and fourth lines: it might be applied, with great truth, to many cases of bad fever in the human being. Towards the close of the narrative, the poet alludes to the dangerous consequences of handling the bodies of the animals that have died of the disease:

* * * * *

Nec tondere quidem morbo, illuvieque, peresa
Vellera, nec telas possunt attingere putres.
Verum etiam invisos si quis tentaret amictus,
Ardentes papulæ, atque immundus olentia sudor
Membra sequebatur; nec longo deinde moranti
Tempore, contactos artus sacer ignis edebat.

With one short quotation from Juvenal, on the spreading of disease by contagion, we close our illustrations for the present.

——————— Contagio labem
Et dabit in plures: sicut grex totus in agris
Unius scabie cadit: ———————
Uvaque conspectâ livorem ducit ab uvâ.

LETTER FROM M. BISCHOFF TO M. BRESCHET ON FECUNDATION.

"In two memoirs which I have recently published—A history of the Development of Mammiferous Animals, and a History of the Ovum in the Rabbit—I have endeavoured to determine with greater accuracy, than had been done previously, the exact period when the ova pass from the ovary into the oviduct, more especially in the dog and rabbit tribes.

In the first place I observe that, according to the results of most accurate and generally received experiments, there is no *necessary* mutual connexion, in any tribe of animals, between the escape of the ova from the ovary and the acts of coition and fecundation. Everywhere we find that the ova are developed and matured in the female animal, and may become detached from the ovary and separated from its body, quite independently of any participation of the male animal. In a great number of cases, we know that the fecundation of the ova by the male does not take place until after the expulsion of the ova, not only from the ovary, but even from the body of the female; while, in numerous other examples, we observe that, although the act of fecundation takes place within the body of the female, the development, maturation, and detachment of the ovum in these animals are often effected without any copulation: the ova however being then not susceptible of ulterior development. The acts of coition and fecundation are, so to speak, only accessory and accidental, as far as the formation,

* Let our readers compare this poetic narrative with the description of some of the diseases in the horse, given in the article on Veterinary Medicine in the present Number. It will then be seen how true to nature Virgil has kept.

maturation, and expulsion of the ovum are concerned; but they are essentially necessary for its complete development. Such is the case in the human species as well as in the lower animals—viz: that ova may be detached, at periods of greater or lesser regularity, from the ovaries, quite independently of any communication with the male.

I am convinced, by the results of very numerous experiments on bitches and rabbits, that, after the ligature and extirpation of the uterus, the phenomena of generation invariably take place thus far, provided the ovaries and Fallopian tubes have remained uninjured. The animal will rut at the usual period, and copulate with its male, and the ova will be developed in and separated from the ovaries, reaching the oviduct as in a state of health; but, not being fecundated, they never, as a matter of course, can exhibit the phenomena of embryonic evolution.

I have also satisfied myself that, just as the ova may be formed and matured in the female independently of any co-operation on the part of the male animal, so the seminal fluid of the latter pursues its usual course independently of the ova in the female. In two bitches, which were carefully examined a few days after copulation, I found several detached and fecundated ova in one of the Fallopian tubes, while in the ovary on the other side there was not any tumefaction of the Graafian vesicles nor any ova or ovula sufficiently far advanced to become separated; but seminal fluid was discovered within the uterus, and the corresponding (?) Fallopian tube, and on the surface of the ovary itself.

Another result of my researches is that, if animals in *heat* be prevented from copulating, the very same phenomena take place in the ovaries as if they had copulated: the Graafian vesicles swell, the ova exhibit all the marks of maturation as if ready to quit the ovary, the vesicle of *Purkinge* disappears under, or is concealed by, an effused spot of blood, and a distinct *corpus luteum* is formed. I have not yet determined with certainty whether the Graafian vesicles burst, and the ova enter the oviduct, or whether these become absorbed under the ecchymosed spot, in the interior of the Graafian vesicles.

That the seminal fluid is ejaculated fairly into the cavity of the uterus—at least in the dog tribe—has been repeatedly ascertained beyond a doubt. In one very interesting experiment, I found in a bitch, immediately after its first copulation, the semen in the superior angle of both cornua of the uterus; while, at the same time, not only were the Graafian vesicles burst, and distinct *Corpora lutea* formed, but no fewer than five ova were found in the left oviduct. It appears therefore indisputable that ova may become detached from the ovary in mammiferous animals before they have ever copulated, and may pass into the oviduct, there to be afterwards fecundated by the seminal fluid.

We cannot, indeed, admit that the ova are detached from the ovary at the time of copulation; for it seems not probable that they could pass so quickly along the Fallopian tubes, as this supposition would imply. Many experiments have led me to believe that it requires fully eight days for them to traverse the whole extent of the oviduct—13 to 16 millimetres long.

But, it may be asked, how does this assertion tally with the results of other experiments, where I have discovered that, in from 18 to 24 hours after the first act of copulation, the Graafian vesicles remained still closed, with the ova included within them: and that the seminal fluid of the male had entered the Fallopian tubes, and even reached the ovaries. Now all this is readily explicable, if it be borne in mind that the act of copulation does not itself occasion any escape of ova from the ovary. The truth is, that, when animals are in *heat*, the ova become maturated and detached from the ovary; and it is well known that it is during this time that the sexual desire impels them to copulate. It is probable, indeed, that, in the natural state, animals gratify the passion almost always before the escape of any ova from the ovaries has taken place, and then the seminal fluid has time to reach the ovaries beforehand. But, if copu-

lation be retarded or altogether prevented, the ova nevertheless pursue their course.

* * * * * *

I wish now to say a few words respecting a subject that has been much discussed in human physiology, the nature of the *Corpora lutea* in the ovaries of women: Are they, or are they not, to be regarded as signs or evidences of anterior conception? The recent researches of some excellent observers certainly tend to prove that these bodies may be formed, quite independently of sexual connexion. Hence certain authors, as Drs. Montgomery, Lee, Paterson, and others, have tried to show that there are two sets of the *Corpora lutea*, the true and the false. But the marks of distinction, mentioned by these gentlemen, are quite fallacious: for they are based on mistaken views as to the formation of these bodies.

The old doctrine—that each catamenial discharge depends on a rupture of a Graafian vesicle, the ruptured spot becoming the seat of a Corpus luteum—has been revived of late years; and my own observations tend to confirm the correctness of this opinion; for, on four occasions, where I had the opportunity of examining the ovaries in young women who had died very shortly after the catamenia had been upon them, I found in each case recently-formed *Corpora lutea*, which were manifestly the result of effused blood in the interior of Graafian vesicles.

Now, if we admit this view of the physiology of the menstrual discharge, it is obvious that an intimate analogy must exist between this function in the human female, and the period of *heat* or *rutting* in the lower animals: both depending upon a periodic excitation of the organs of generation, which is connected with the swelling of a Graafian vesicle, and the maturation and escape of an ovum. It is a well-known fact that women conceive most readily immediately after a catamenial period, and it is only when the *heat* has continued for some time, and has reached to a certain degree or pitch in animals, that the desire of sexual connexion is strongly felt. While the discharge continues in the one, and when the *heat* is first felt in the other, there is rather an aversion from, than a longing for, such intercourse. In both classes, the period is co-existent with the maturation of an ovum, and its consequent escape from the ovary.

* * * * * *

I hope, ere long, it may be satisfactorily proved that, throughout the whole animal kingdom, (including the human species,) the maturation and detachment of ova from the ovaries obey a certain periodicity—which is manifested in women by the appearance of the menstrual discharge, and in brutes by the period of their *heat*: copulation and fecundation being, in this general point of view, only accidental circumstances.

If the ova of mammiferous animals were not so minute, there is little doubt but that physiologists would often have discovered unfecundated ova in the oviduct, just as we do in all the tribes of birds. But the ova of the former are so small and so delicate that they usually become dissolved in their passage through the genital organs."—*L'Experience.*

AMENORRHŒA, THE CAUSE OF, IN THE STATE OF THE OVARIES.

The following ingenious remarks by M. *Raciborski* will be read with interest after the preceding letter of M. *Bischoff*, as they tend to give a practical value to the speculations therein contained.

"All diseases, which in any way retard the mature and perfect evolution of the Graafian vesicles in the ovaries, will have a tendency to prevent the first appearance of the catamenial discharge at the period of puberty. The best ex-

menagogue in such cases is the improvement of the general health, and the strengthening of the powers of the constitution. Regular exercise out of doors, wholesome nutritious food, riding, walking, and the various gymnastic games—these are the most useful means to be adopted to promote the efforts of nature to bring forward the development of the ovarian vesicles."

By taking this view of the case, we can readily understand why the first occurrence of the catamenial discharge, after any severe illness, is always to be regarded as a favourable symptom; for it shows that the system is recovering its normal energies in the production of new formations. Hence, too, it is that the period of convalescence is usually fairly established, before the menstrual secretion is re-established.

This is not to be regarded as a crisis, or as in any way contributing to the recovery; it is only as a sign or proof of this having fairly commenced: in short, it is the *effect*, and not the *cause*, of the improved health.

It is important for medical men to attend to this circumstance, with the view of avoiding those errors in practice which have hitherto been too commonly committed. If the catamenial flux be the consequence of a preceding change that has taken place in one of the ovaries, it must be quite obvious that any attempt to force the secretion in a female, who is recovering from a severe illness, before nature has prepared the necessary preliminary process, must be at once futile and pernicious. If the Graafian vesicles are not duly developed, and if, therefore, there be no tendency to a "ponte"—or discharge of a vesicle or ovule from one of the ovaries—taking place, in vain shall we have recourse to the use of emmenagogue medicines, the application of leeches, or the employment of any stimulating injections, &c. The only judicious plan is to fortify the general health and powers of the constitution by a proper hygienic regimen, so as to assist nature in the formative work that is continually going on, at regular intervals, in the female system. In this way alone can we promote the recurrence of the menstrual flow, under the circumstances to which we have been alluding.

Chlorosis.—There has been no little discrepancy of opinion respecting the primary or exciting cause of this very common malady. That there exists an alteration or abnormal condition of the blood, in all cases, is abundantly obvious; but then the question presents itself for our consideration—is this state of the circulating fluids primary and idiopathic, or is it consecutive to, and dependent upon, some other abnormal condition of the system?

It has been supposed, by some, that the first link in the morbid change is a lesion of the great sympathetic nerve, and that the alteration in the composition of the blood, as well as the various disorders of the digestive, nutritive, and genital functions, are all owing to a neurosis of this great regulator of organic life. Whatever opinion we adopt on this subject, it will be admitted by all that there is an intimate relation between the condition of the menstrual function and the existence of the disease, to which we give the appellation of Chlorosis, and that this morbid state is one of the most frequent causes of the retardation of its first development in young girls.

The recent researches of MM. *Andral* and *Gavarret* have demonstrated, in a very striking manner, the nature of the remarkable changes in the blood of chlorotic patients: the proportion of the red globules to the other constituents of this fluid becomes diminished by one-half or even two-thirds below the healthy standard.

Of late years, much attention has been paid to the abnormal sounds heard over the heart in most chlorotic cases. There is usually a strong blowing *bruit* accompanying the first note of the tic-tac, that is perceptible over the position of the aortic orifice; it is but feeble and indistinct at other points of the precordial region. With due care on the part of the physician, this auscultatory

symptom can never be mistaken for a sign of idiopathic cardiac disease; for the abnormal blowing sound in chlorotic patients is usually of a softer and less grating character; and moreover there is not the extended dulness on percussion, nor the purring sensation, nor the bulging-out of the ribs—so generally present in organic lesions of the heart. Besides the blowing sound heard over the aortic orifice, there is very often a curious sort of musical whistling sound perceptible along the *trajet* of the carotid, and occasionally, also, of the subclavian, and even of the femoral arteries: this has been very expressively called, by M. *Bouillaud*, the *bruit de diable*—from its resemblance to the sound given out by the plaything of children, which goes by that name.

In addition to the palpitations of the heart, the shortness of breath upon any exertion, the general weakness, the loss of appetite, the desire for inedible, and sometimes even the most offensive substances—for girls have been known actually to devour their excrements—the constipation, &c., there is a remarkable tendency in chlorotic cases to some form of neuralgic suffering, such as megrims, tic doloureux of the face, gastrodynia, hysteralgia, and so forth.

From the very frequent absence, or, at least great irregularity, of the menstrual secretion in chlorosis, many excellent writers, including *Cullen*, have regarded these two states as being in the relation of cause and effect to each other. Although this opinion is still held by several physicians, it will be found, we think, altogether untenable, upon examining certain cases of the disease occurring in patients who have already menstruated, and in whom all its characteristic symptoms are occasionally developed even before the interruption of the catamenia has taken place—the amenorrhœa, therefore, being consecutive to, and certainly not the occasion of, the chlorotic affection. Indeed, the menstrual secretion is seldom quite arrested, under such circumstances, till the latter disease has continued for a length of time, or exists in a very intense degree. For a period, the discharge may recur regularly, although it is usually much paler and more watery than in health; and it is only when the general atony and feebleness of the system have become so great that (as we may suppose) the ovaries have lost their power of fully developing the Graafian vesicles, that a complete suspension of the menstrual flux occurs. The same reasoning applies to the case of young girls at the period of puberty. If they do not become regular, *it is* because they are chlorotic; but the reverse of this position does not hold good. In short, the chlorosis is the cause, and not the effect, of the menstrual irregularity.

We have twice had an opportunity of examining the ovaries in chlorotic girls—the one 16, and the other 17 years of age—who died from acute disease, without having ever menstruated. The Graafian vesicles in these cases were decidedly more swollen than they usually are, and ought to be, at that period of life.

The general feebleness of the vital energies of the system at large is, therefore, to be regarded as the real and essential cause of Amenorrhœa in early life. This feebleness is not confined to one part, or one function of the body only; but it affects the entire system, and most probably it is to be traced to the same cause as that which induces the weakness of the digestive organs, and the impoverishment of the blood. We do not, therefore, agree with *Cabanis*, in believing that the proximate cause of Chlorosis is an *inertia* of the generative organs, and the consequent defective or irregular re-action of those organs on the powers of the constitution in general. If such were really the case, and if a certain degree of energy in those organs were necessary to the normal condition of digestion and sanguification, what, we might ask, should be the result of removing the essential organs of re-production—the testicles and ovaries—on the state of these two functions?

The daily experience of farming-life can answer this question most unhesitatingly in the negative. Castration in the lower animals is well-known to be anything but unfavourable to their having a healthy digestion, and a rich

state of blood: nay, it seems to promote the activity of these very functions, viz. nutrition and sanguification.

Strange to say, some writers of the present day have supposed that Chlorosis is the result of congestion or engorgement of the uterus, re-acting on the various functions of the economy. "This idea is so utterly groundless, that I should not even have alluded to it," says M. *Raciborski*, "if it were not advocated in a book that ranks high in public favour, and is the production of one who enjoys the greatest reputation for skill in the treatment of uterine affections."* He goes on to state that, when he was chief clinical clerk at La Charité Hospital, scarcely a week passed over without some poor exsanguine chlorotic patients—who had been drained of the little good blood that was in their bodies by leeches and bleedings—being admitted. All this was the effect of the truly absurd notion, that engorgement of the uterus has anything to do with the green-sickness of females.

From what we have said above, it will be obvious that, according to our views, the condition of the genital organs affords no useful indication for directing the treatment of chlorotic affections. The functions of these, as of other parts of the body, will spontaneously return to a healthy state, when the general powers of the system are restored to their normal activity.—*L'Experience.*

M. Raciborski on the Critical Age in Women.

After some curious observations on the very different periods of life, at which the catamenial secretion has been known to cease, our author proceeds to remark:—

"We are not to regard all Sanguineous discharges from the Vagina, about the *change in life*, as strictly menstrual. Whenever these discharges are irregular in their recurrence, we have strong reason to suspect that they are not connected with the development of the Graafian vesicles, but that they are probably the result of a habit, so to speak, on the part of the system to suffer a certain loss of blood at particular times.

"The cessation, therefore, of the Menstrual Secretion is to be regarded in two distinct points of view—1, as indicative of the extinction of the process of ovulation (ponte,) and therefore of the faculty of reproduction; and—2, as the arrest of a long-accustomed habit to the periodic discharge of blood, in more or less considerable quantities.

"The physiological extinction of the faculty of reproduction gives rise to effects in every respect similar to those, which have been observed in cases where the ovaries have been removed. All the other functions of the system, and more particularly that of nutrition, seem to have their energies increased; hence the tendency to plethora and corpulency, so common at this period of life. The ill-effects of the cessation of the accustomed discharge are often, as we might expect, aggravated when the woman becomes fat; as she is then generally the less disposed to take active bodily exercise, and the more inclined to indulge in luxurious living.

---

* Although our author does not mention the name of the writer in question, we have no doubt as to whom he alludes. We are pleased to find that the opinion of so intelligent a practitioner as M. *Raciborski* altogether coincides with that we expressed of the Clinique Chirurgicale, in our review of its second volume: vide Medico-Chirurgical Review, for April, 1843.

"The Sexual organs do not in general lose, all of a sudden, the tendency to the periodic excitement of which they have so long been the seat. On the contrary, it usually happens that they continue for some time to be the centre of a fluxion, which terminates at least in a leucorrheal exhalation. *Fernal* relates a case of a woman who, upon the cessation of her Catamenia, was affected every month with an enlargement of the abdomen, which subsided only after a copious evacution of serous fluid from the vagina.

"Not unfrequently the system, having been for many successive years accustomed to a periodic discharge of blood, seems to experience the want of such a drain after the climacteric period. A state of plethora is induced; and hence a tendency to hæmorrhage or congestion in certain parts is often manifested. *Hoffman* quotes a case, where a woman, soon after the cessation of her Catamenia, was suddenly seized with an apoplèctic fit, which did not give way, until a copious hæmorrhage from the hæmorrhoidal vessels took place. Whenever, therefore, there is any tendency to bleeding piles, or to Hæmaturia, at this period of life, the greatest caution should be used in checking these vicarious discharges.

"Certain diseases are more apt to be developed in the female system at the critical age, than at any other period of life. *Hippocrates* says that Gout is apt to make its appearance then—*Mulier podagra non laborat, nisi menstrua defuerint.* The correctness, however, of this remark is questionable. *Galen* tells us that he did not find it hold good at Rome; and *Seneca* formally reproaches the women of his time for falsifying the aphorism of the Coan sage.

"However this may be, there can be no difference of opinion respecting the greater frequency of another, and a more distressing, malady at this peried of life—we mean Cancer. The old Grecian has not forgot to allude to this: Conclusi uteri menses ad mammas recurrunt, et in mammis tubercula dura exoriuntur; quædam quidem majora, quædam verò minora: hæc autem minimè suppurant, sed semper duriora fiunt; exinde Cancri occulti nascuntur.

"Polypi of the uterus, also, are of not unfrequent development at the critical age. Probably, however, it has been too commonly supposed that this period of life is exposed to unusaul danger. It should not be forgotten that many women enjoy much better health after the menses have left them, than they had done for many years before. Perhaps this is most frequently experienced by delicate and weak-blooded subjects, in whom the discharge had been apt to be profuse.

"Women, who have been addicted to venereal excesses, are more subject to suffer at the critieal age than others. To such we may apply the poet's remark,

Læta venire Venus, tristis abire solet.

"*Muret* says that the epoch between the 40th and 50th years of female life is not attended with greater danger than that between the 20th and 30th years; and M. *Saucerotte* has shown, by numerous statistical tables, that the mortality is actually higher between the 30th and 40th, than between the 40th and 50th years of a woman's life.

"Lastly, M. *Chateauneuf* has proved that the epoch of life between the 40th and 50th years is really more critical for men than for women.

With respect to the medical management of women, in whom the catamenial discharge is gradually ceasing, M. *Raciborski* very judiciously remarks, that more benefit will usually be obtained by regulating the diet and general regime, than by the employment of any pharmaceutic preparations. Whenever there is any tendency to plethora, it is wise to have recourse to a more spare diet than usual, and especially to avoid all stimulating beverages. The occasional use of warm bathing, also, is often of very marked benefit; for thus a greater determination to the surface is promoted, and the more abundant perspiration tends to relieve the

system very much.* For the same reason, the woman should accustom herself to take regular active exercise: none is so good as brisk walking for a considerable distance at a time.

M. *Raciborski* is of opinion that not a few of the uterine complaints, that are apt to supervene after the cessation of the Catamenia, are owing to the continuance of sexual intercourse, when nature has intended otherwise. The reproductive faculty no longer exists; and therefore the venereal desire, if such continues to be experienced, is the result rather of a depraved appetite than of a natural impulse. The excitement, too, induced thereby in the organs of generation, has no relief now in the periodic hæmorrhage to which they were before subject. The frequency of engorgement of the uterus, under such circumstances, may be readily accounted for; and the subject therefore deserves the serious attention of medical men.—*L'Experience.*

On the Increasing Frequency of Cancerous Diseases.

M. *Tanchou* has recently addressed to the Academy of Sciences an elaborate memoir on this subject. Under the general term of Cancerous Disease, he includes not only the genuine or ulcerated cancer, but also scirrhus, carcinoma, osteo-sarcoma, encephaloid tumors, lupus, noli me tangere, sarcocele, &c.

"The frequency of diseases," says he, "is in the direct ratio of the susceptibility of the organs which become affected. When this is not the case, we may generally trace them either to accidents, or to the agency of some casual circumstances. Cancerous maladies are not exempt from the operation of this general law; but hitherto certainly no satisfactory examination has been made of the causes which usually induce them. I had long suspected that the peculiarities of civilized life may have something to do with the production of this most formidable class of diseases. With the view of determining this point, I have examined with great care the civic registers of the department of the Seine during the ten successive years from 1830 to 1840 inclusive. During these eleven years, the whole mortality in Paris (in the two sub-prefixtures of Sceaux and St. Dennis) amounted to 382,851 deaths. Of these, 194,735 occurred in males, and 188,116 in females. Of the entire number, 9118 deaths were attributed to cancerous disease; 2163 occurring in men, and 6955 in women. The following is the annual register of deaths from this cause.

"In 1830 there were	568 deaths.
1831 . . .	865
1832 . . .	814
1833 . . .	814
1834 . . .	857
1835 . . .	906
1836 . . .	837
1837 . . .	778
1838 . . .	803
1839 . . .	887
1840 . . .	889
Total . .	9118

---

* The use of warm baths is unquestionably not sufficiently adopted in this country for the treatment of uterine ailments, whether these occur in early years, or about the change of life. A vast number of cases of Dysmenorrhœa will be more benefitted by this simple and agreeable remedy, than by all the other prescriptions of the physician.—*Rev.*

"The class of diseases to which we are now alluding, is of much greater frequency within the walls, than in the outskirts, of the metropolis. Let us now briefly consider the periods of life at which they occur most frequently. The following table will enable us to form an opinion on this question.

Age.	Deaths from Cancer.	Males.	Females.
From 1 to 10 years	23	9	14
—— 10 to 20 "	26	13	13
—— 20 to 30 "	231	62	169
—— 30 to 40 "	1012	190	822
—— 40 to 50 "	1975	339	1636
—— 50 to 60 "	2108	488	1620
—— 60 to 70 "	2067	598	1469
—— 70 to 80 "	1315	398	917
—— 80 to 90 "	335	62	273
—— 90 to 100 "	26	4	22
Total	9118	2163	6955

"Of the organs of the body affected, the uterus was most frequently the seat of the malady; next the stomach, and then the mammæ. The liver too is a common seat of malignant degeneration."

M. *Tanchon* remarks, "that there is reason to believe that the frequency of Cancer is on the increase, more especially in large towns. Mr. *Farr* tells us that, in 1838, the number of deaths (in England, we believe) from this cause was 2448, while in 1839 it rose to 2691. My own inquiries lead to a similar conclusion; for, from a registry of cases of Cancer of the Uterus, I find that there were in

	Cases.		Cases.
1830	351	1833	498
1831	391	1834	436
1832	396	1835	508

*　　*　　*　　*　　*

"Cancer, like Insanity, is of much more frequent occurrence in civilized than in barbarous countries. Long ago it was remarked in the East, that the disease was much oftener found in the Christian than in the Moslem population there. *Fabricius Hildanus* was of opinion that it was more frequent in temperate than in very warm climates; and this opinion has certainly been confirmed by the experience of some recent observers. M. *Hamon*, an eminent veterinary surgeon who has been attached to Mehemet Ali's service for the last 14 years, informs me that he has never seen a case of genuine cancer in the native or Fellah women, and not many even in the Turkish women, of Egypt. M. *Clot-Bey* has made a similar remark; and M. *Bac*, Surgeon-Major of the Second Regiment of African *Chasseurs*, never met with a single case during the six years that he resided at Senegal. Again, M. *Baudens*, now the head surgeon at the Val de Grace, whose practice at Algiers was most extensive for a considerable number of years, did not meet with more than two or three instances altogether."

M. *Tanchon* closes his remarks with the following general conclusions:

"1. The frequency of cancerous diseases appears to be on the increase, and this frequency seems to be proportionate to the degree of civilization to which a people has attained.

"2. It is towards the decline of life, and more especially in the female sex, that the development of Cancer is most to be dreaded: but early age is not entirely exempt from its attacks.

"3. Glandular organs, and those in particular which are the most susceptible of excitement, are most frequently the seat of the disease.

"4. The proximate cause of the disease appears to exist in every part of the system; but rather in the fluids than in the solids.

"5. When not induced by any external cause, it seems to result from a molecular organic modification or lesion of the part, occasioned by various causes, which as yet are but little known.

"6. In the actual state of our knowledge, the treatment of Cancer can be little else but empirical, like that of Syphilis, Dartres, &c. Still there is reason to hope that we may yet learn how to arrest, if not actually to extirpate, the morbid process. In many cases, we well know that the disease is remarkably stationary for a great number of years, and indeed that its existence seems not much to interfere with the full prolongation of life. What are the circumstances favourable to inducing such an arrest, we indeed are almost wholly ignorant; but much may be expected from a careful watching of such cases by metropolitan surgeons, and others who have the opportunity of seeing many cases of cancerous maladies. The regulation of the diet is unquestionably of primary importance, and hence every means should be adopted to keep the digestive and assimilative organs in a sound healthy state, in order that there may be a regular supply of wholesome chyle."—*Gazette des Hôpitaux*.

The Physiological Antagonism between the Respiratory and the Biliary Organs. By M. Virey.

"The unity of an organised body is maintained only by the aid of certain antagonisms, which are in a state of equilibrium during health. There is, for example, an antagonism between the cerebral and the genital poles in all animals formed of two cemented lateral halves; and there is an antagonism of duality between the brain and the heart. Physiologists have neglected too much these balancing relations between different organs and systems of parts, although much of the harmony of life depends upon their reciprocal agency.

"In the zoophytes, the annelides, and in the six-footed insects—animals in which the respiratory organs are either aquiferous or aerial tracheæ, dispersed over the entire body—there is no liver, nor, indeed, properly speaking, any conglobate (conglomerate ?) gland. The digestive, like the respiratory, functions, are performed by a general apparatus, and not by special and distinct organs; that of nutrition by a sort of universal imbibition, and that of respiration by means of a tissue that is permeated with tracheæ.

"But when the organisation becomes more complicated, as in animals provided with branchiæ, (the Mollusca, Crustacea, and Fishes,) then there must co-exist an apparatus, antagonistic of this aquatic respiration, for elaborating the chyme. Such is the Liver. The complexity of the digestive process is found invariably to increase with the more perfect state of the blood-making organs.

* * * * * *

"We see, therefore, that as we rise in the scale of animal organisation, the respiratory apparatus acquires more and more ample development; and that, in proportion as this is the case, so is the development of the biliary organs at the same time. Thus, there is an invariable antagonism, or compensating relation between these two sets of organs; and we now proceed to explain the probable reason why such a relation exists. The *Liver* is the organ that is chiefly engaged in elaborating the chyle; or, in other words, in transforming it into an animalised substance, by purifying it from its coarsest particles. The *Branchiæ* or *Lungs* serve for effecting the second and more advanced elaboration, which consists in freeing the blood from a portion of the carbon, in order that its azotised ingredients may predominate.

"The aquatic or branchial tribes of animals—viz. the Mollusca, Crustacea,

and Fishes—respiring the air only by the intervention of water, (or, so to speak, at second hand,) have the venous system predominant, and consequently their blood is cold: the liver is usually very largely developed, generally oily, and is sometimes poisonous. In the pulmonary or air-breathing animals, all the functions are usually more highly developed, and none more so than those of sanguification and innervation.

"There is thus always a sort of compensating equilibrium between the organs of the thorax and those of the abdomen, for the due performance of the actions of life. The lung is the principal *foyer* of the arterial blood, while the liver is that of the dark or venous blood.

"The predominance of the respiratory over the biliary functions tends to support and maintain, by means of a red and highly-oxygenated blood, the various organs of external or animal life, especially those of the muscular and nervous systems; whereas, that of the biliary functions indicates an excess, so to speak, of the merely organic or vegetable life.

"In truth, the Liver broods, as it were, like a great reservoir, over the disoxygenated blood; receiving, with the chyle and the lymph, the reparative elements of the economy, in order to transmit them eventually to the pulmonary elaboration. This blood abounds in the elements of carbon and hydrogen, to form the fat and oil, which abound in such large quantities in fishes and other branchial animals. Such also is that morbid state, to which birds, that are fattened for epicurean purposes, are brought; they are stuffed with food and kept in a state of complete inaction, usually too in the dark and in a highly-heated atmosphere. Whenever, in short, the respiration is slow and imperfect, the liver seems to have an extra amount of duty to perform; and *vice versa*. Every thing that excites the respiratory functions, such as the inhalation of sharp cold air, the use of acids, and highly-oxygenated substances, &c., increases the energy of the circulation, and tends to induce inflammatory affections of the lungs; at the same time, the activity of the muscular system and the tension of the nervous system becomes exalted; the person is more capable to undergo violent bodily exertions, and protracted mental application; and, in short, all the phenomena of animal life are performed with unusual vivacity and force. The reverse of all this is found to be the case, when the hepatic functions predominate. By attending to this mutual antagonism of the Lungs and the Liver, the physician may be better enabled to afford relief in the morbid conditions of these most important viscera."—*Gazette Medicale.*

Remarks.—The speculations of M. *Virey* are usually characterised rather by their fanciful ingenuity than by their solid truth. The fundamental position in the preceding observations—viz. that there is a mutual, and, as it were, compensating relationship between the Lungs on the one hand, and the Liver on the other—is unquestionably perfectly correct; but then, with what is strictly true, he mixes up so much that is either assumed, or that is positively inaccurate, that the reader is often puzzled to know what he may believe. It may be well, therefore, briefly to state that Comparative Physiology affords very numerous arguments in proof of the position that the development and activity of the respiratory and biliary organs are almost invariably inversely proportionate to each other, throughout the animal kingdom. In Insects, in which the respiratory apparatus has a truly wonderful degree of activity and extension, the Liver is so small, that for a long time it was entirely overlooked, or mistaken for other organs; while in the Mollusca, in which the respiration is comparatively feeble, the Liver is so large as to constitute a large portion of the entire bulk of the body. In Reptiles and Fishes also, whose respiration and temperature are low, the Liver is comparatively larger than in Birds and the Mammalia, whose breathing is energetic, and whose blood is warm. The large size of the Liver too in the

fœtus, compared with that of the Lungs, may be adduced as another example of this alternating and compensating relationship between these two viscera.

From all these data, therefore, it seems probable that, when the nature of the animal requires a high temperature, the carbon and hydrogen of the body are eliminated by the Lungs, these elements being disengaged, while oxygen is at the same time absorbed: and, on the other hand, when the animal heat is low, that this elimination is effected chiefly by the agency of the biliary secretion.—(*Rev.*)

On the Natural or Spontaneous Cure of Phthisis.

M. *Boudet*, the author of a very able work, recently published, on the Cure of Pulmonary Phthisis, has a valuable paper on the same subject in a late number of the *Revue Medicale*. The following extracts will enable the reader to judge of its merits.

"Tuberculous degeneration of the lungs and bronchial ganglia is infinitely more common, and is oftener susceptible of a favourable termination, than most medical men are willing to admit. In very young children, indeed, tubercles in the lungs are certainly of rare occurrence. Of 835 dissections of the bodies of infants, during the first year of life, pulmonary tubercles were found in 13 only—or once in every 64 cases. The frequency, however, of the disease increases very rapidly with the age; for, during the second year, the ratio was found to be as that of 1 to 12: and this progresses, as years advance.

"Having examined in succession, and without selection, the state of the lungs in 197 persons, (of from 2 to 70 years of age,) who died from various diseases or even from casual accidents, I obtained the following results. From two to fifteen years, I found tubercles in three-fourths of the cases. At a somewhat more advanced age, the proportion of tuberculous to non-tuberculous individuals seems to reach its maximum; for of 135 persons, whose ages varied from 15 to 36 years, in no fewer than 116 were tubercles found, either in the lungs themselves or in the bronchial glands; viz. a proportion of six in every seven cases. If such be the case, we may truly say that the presence of tubercles in the respiratory organs is the rule, and their absence is the exception.

"This singular result—a result which, at first sight, seems almost quite incredible—is however readily explicable by the gratifying circumstance of the extreme facility with which these morbid products cease to be incompatible with health, in consequence of various changes that they are liable to undergo in their intimate composition.

"The spontaneous cure of tubercles in the lungs is effected in several different ways. In some cases the tuberculous deposit becomes isolated from the surrounding pulmonary tissue, by a firm fibrous envelop being formed around it. Again, the density of the tubercles themselves may become increased in one of three ways: either by their becoming so desiccated as to form quite a friable paste; or by their assuming a firm tenacious consistence that is greasy to the touch; or, lastly, by their degenerating into an inorganic calcareous matter.

"Tubercles may also disappear, in consequence of the progressive extension of the black pulmonic deposit, that we so often see around them. Occasionally, too, they become wholly or partially absorbed, leaving nothing in their place but their sac or envelop. Lastly, their contents may be eliminated from the body."

These various modes of natural cure may be reduced to five, viz.—1. *Sequestration*, by the development of a fibrous sac around the tuberculous deposit;—2. *Induration*;—3. *Transformation* into black pulmonary matter;—4. *Absorption*; and 5. *Elimination*.

The author makes the following remarks on the latter two modes; and first of absorption.

"Tuberculous matter may be absorbed. I have frequently had occasion to observe tubercles which had become modified in their consistence, and which exhibited very unusual appearances. Instead of being globular, they were of an oval or elliptic shape, or they had become rough and angular on their sides. May we not suppose that such changes were owing to an unequal absorption of different parts of these deposits?

"Occasionally, too, I have found, in the centre of a thin membranous cyst, a minute tubercle, perhaps not larger than the quarter of the size of a millet seed, and which yet exhibited all the physical characters of this morbid product. Now we rarely or never meet with tubercles, when first deposited in the pulmonary parenchyma, so very small as those which we have now described. There is strong reason, therefore, for supposing that a partial absorption has taken place. What greatly confirms the probability of this idea is, that I have occasionally found, in the neighbourhood of these dwarfed tubercles, numerous minute cysts, which were entirely empty; the tuberculous matter, which had once filled them, having disappeared. From these facts I infer that tuberculous deposits may disappear from the tissue of the lungs, by becoming absorbed.

"With respect to the mode by elimination, the only remark that I have to make is, that I have never known it to be effected except in one way, viz. that of expectoration from the bronchi. In this manner, sometimes, pieces of very considerable size have been rejected by coughing.

"The transformation of tuberculous matter may take place at all the stages of its evolution; in the state of softening, as well as of crudity; and under the form of grey granulations, and yellow tubercles, whether these be separate or aggregated together.

"Even tuberculous excavations of the lungs not unfrequently undergo a curative process. Of 197 cases taken at hazard, in 10 I have found the cicatrices of caverns in the lungs, without the existence of any recent tubercles; and in other eight cases, the process of cicatrisation was going on, while recently-formed tubercles existed at the same time. When circumstances are favourable, the process of their healing is usually by the organization of an accidental mucous membrane, lining their cavity; but sometimes by the formation of a fibrous or fibro-cartilaginous envelop. Their cavities may continue to be open, and to communicate, or not, with the adjoining branch. Sometimes they become quite obliterated by the cohesion of their opposite surfaces.

"Usually, the parenchyma of the lung for some little extent around the cicatrised vomica is more or less indurated and impermeable to air: very often it is infiltrated with a black-coloured matter.

"Not only have I frequently ascertained by dissection the frequent transformation of tuberculous deposits, but I have also been able to follow out, in the living subject, the confirmation of these data; and I now feel confident that phthisis is much more frequently cured than most physicians are willing to admit."

M. *Fournet* alludes to his having met with, in the course of one year, no fewer than 14 cases of confirmed phthisis that were cured; besides 10 other cases, in which dissection revealed the traces of caverns, that had become perfectly healed.

He goes on to remark, that "these 14 cases of phthisis cured in the living subject, have proved to me—

"1. That certain persons, who have exhibited the most decided symptoms of the disease in its most advanced stage, may yet be restored to excellent health.

"2. That, if the general state is satisfactory in these individuals, and does not occasionally bear the evidence in some manner of the accidents of their past life, the local condition is very different, and always reveals the presence of alterations, more or less extensive.

"3 That even hereditary phthisis, in its most advanced stage, is susceptible of cure; although such an occurrence is certainly much more rare than in cases of the accidental disease.

"4. That phthisical patients, who have been treated by very various kinds of remedies, or who have been left entirely to the resources of the natural powers of their economy, seem to have recovered in about the same proportion; and, therefore, that nature generally 'fait tous les frais' of the cure of the disease."

He concludes his remarks with the following sentence: "The capital fact which seems to spring from these inquiries is, that tuburculous disease is not, like Cancer, essentially incurable; on the contrary, that it is often curable, and that its extreme and most disheartening fatality is referrible rather to the circumstance of its being seated in one of the vital organs of the system, and to its tendency to frequent relapses, than to its primary and essential nature."

Remarks.—Would that we could conscientiously take the same views, as to the curability of Pulmonary Consumption, that M. *Fournet* does! Surely he has allowed his enthusiasm on a favourite subject of inquiry to bias his calm and dispassionate judgment; for, in what other way can we explain some of the startling assertions, contained in the preceding observations? Not to say anything as to the alleged extreme frequency of tuberculous disease—and on this point our author is not a little extravagant—we much fear that the experience of other medical men will not warrant the encouraging promises of a cure that M. *Fournet* holds out, even under favourable circumstances; far less in the very advanced stage of the disease, when cavernous excavations have already taken place. We wish not unnecessarily to damp any rational anticipations of effecting a mere *arrest*, if we cannot expect a *cure*, of this very formidable and most distressing disease; but it would be compromising our sincerity and regard for truth, if we hesitated to express, at once and with perfect candour, our opinion as to the degree of influence which such observations as those of M. *Fournet* should be allowed to have.—*Rev.*

M. CAYOL ON THE VIS MEDICATRIX NATURÆ.

The writer of the preceding article having selected for it the following motto—"The ancients attached too much importance to the medicative force of nature in the cure of diseases, while the moderns do not attach enough"—the learned and consistent Editor of the *Revue Medicale* takes the opportunity of appending some remarks in the way of comment.

"This Epigraph," says he, "at the head of an inaugural dissertation, should be received as a happy omen of the decline of the Materialist School of Medicine, and of the return—slow but progressive—of our science to its true principles. It is now 15 or 16 years ago since I commenced, at the Hôpital de la Charité, a course of clinical instruction. My first lecture on the *Vis Medicatrix Naturæ* excited astonishment among the audience that then listened to me. Imbued with the principles of a mere Anatomism—at that time vivified by the genius of *Broussais*, who was then at his apogée—they could form no rational idea of the subject on which I was discoursing. In the present day, however, the profession is beginning to study and understand it; and altogether a better direction is observable in the anatomical studies of our physicians.

"On the occasion to which we allude, we raised our voice most emphatically against the deplorable abuse that was then made of pathological anatomy, by expecting from it much more than it can ever afford. Physicians were in the habit of holding forth the organic alterations, that were found on dissection, as the causes and 'point de depart' of all diseases; whereas, in most instances, these were

the results and effects of the morbid action, that constituted the very elements and essential nature of the disease. Pathological anatomy, we said, instructs us how various structures become gradually changed, degenerated, and perhaps totally disorganised, under the agency of morbific processes, and sometimes by the mere efforts of excessive or over-prolonged re-action—a description of knowledge of the greatest importance in directing our prognosis, and in enabling us to judge aright as to the resources of the healing art. But this is not all. If pathological anatomy teaches us how diseases prove fatal, it also tells us how they sometimes cure antecedent lesions, by revealing to us the admirable resources which the *Vis Medicatrix* of the organism possesses, and the marvellous adaptation of these resources to the end that is to be effected. Thus, in the case of pulmonary excavations, arising from the melting down of tuberculous deposits, we find that the first act is the exudation of a membraniform lining; which, thin and soft at the beginning, afterwards becomes more and more consistent, and at length is transformed into veritable mucous tissue. While this process is going on, the cavity contracts upon itself; so that, in course of time, perhaps nothing but a mere narrow blind fistula remains. The cure is then as complete as it can be. We have related five cases of this description in our Clinique Medicale: they all occurred, during the year 1824, in the wards of La Charité Hospital.—*Revue Medicale.*

It must indeed be gratifying to an intelligent observer like M. *Cayol* to watch the re-action that has been going on of late years in the tone and prevailing spirit of medical doctrine, more especially in his own country; and to use his own, no inconsiderable, influence in bringing it again under the yoke of calm observation and unprejudiced reasoning. The enthusiasm of the phlogistic revolutionists is unquestionably giving way on every side to the quiet loyalty of the Hippocratic School—of which our author has long been one of the most steady and able supporters.—*Rev.*

THE VEGETABLE ORIGIN OF PORRIGO DECALVANS.

Porrigo Decalvans is a disease of the skin, usually of the scalp, producing the falling-off of the hair from the parts affected. It is characterised by rounded spots or patches, the surface of which is usually covered with small dry scales, or a white bran-like powder. If this powder be examined with the microscope, it will be found to consist of minute *cryptogamic* plants. The hairs, that have fallen off, are observed to be encrusted on all sides with these singular growths, and to form a veritable vegetable sheath, which invests them from their point of emergence from the skin to the extent of three or four millimetres. M. *Gruby* (the discoverer, we believe, of this pathological curiosity) has denominated the Fungus by the appellation of *microsporon Andouini*, in compliment to M. *Andouin*, whose inquiries have done so much to illustrate the nature of the parasitic plants, which infest the tissues of living animals.

This porriginous Fungus commences its development on the surface of the hairs, at the distance of one or two *millimetres* from the epidermis: the first sign of its existence being that the tissue of the hair is observed to lose its transparency, in consequence of the formation of excessively minute molecules on its surface.

The altered tissue exhibits the appearance of having distinct fibres, and of cells larger than the fibres of the hairs, elongated and situated parallel to their axes. It is in this part that the *microsporon* is first perceived. By gradually extending in all directions, the adjoining hairs are quickly affected in a similar manner, and the morbid growth advances, until patches of the affected hair fall off, and leave the skin nearly quite bald.

These Fungi are developed and multiplied with surprising rapidity; and hence the extension of the diseased patches is sometimes very sudden. The hairs usually break off at the point, where they are invested with the vegetable covering. The thickest hairs resist the invasion of the disease the longest.

The vegetable nature of *Porrigo decalvans* is a fact that speaks for the contagiousness of the disease. How far any of the other varieties of this scalp affection are traceable to a similar origin, has not yet been ascertained. The first step to the cure of a disease being to understand its nature, we may fairly anticipate that the discovery of M. *Gruby* may have a therapeutic, as well as a physiological interest.—*Revue Medicale.*

Remarks on Lateral Curvatures of the Spine.

As connected with the subject—alluded to in a preceding article—of the morbid states induced by, or at least associated with, the first appearance of the catamenia in girls, we may here introduce the following very sensible remarks on lateral Curvature of the spine. It is well known that this deformity is tenfold more frequent in the female than in the male sex; hence we are, from this circumstance alone, led to suspect that the origin of the affection may generally be traced to some peculiarity in the constitution of the former. True it is that the pernicious system of over-education, to which girls are so much more frequently subjected than boys, the want of due exercise in the open air, the prolonged sedentary occupations—often too on stools or benches which have no back supports—and the insufficiency of school diet, must powerfully contribute to increase any tendency to weakness in the back—more especially at that period of life when the body is growing the fastest, and when, moreover, the curious and important function of menstruation is beginning to be first established. How different is the system pursued with boys at the same age! They have now usually more out-door occupation than before; they are encouraged to ride, fence, and swim; they begin to feed like their fathers and elder brothers; and, in short, everything is done to make them hardy and robust, at this epoch of transition from boyhood to puberty.

It is, unquestionably, about the period of the first menstruation that the earliest signs of spinal curvature are observed in a large majority of cases; and we need scarcely add, that it is at this time that judicious treatment can do the most to check the incipient deformity. Parents are too apt to suppose that it is usually to a mechanical injury, such as a fall or blow on the back, that the malady may be traced. Far from it; in the greater number of instances, no direct injury has ever been received, and the evil has resulted, either from a vicious habit of standing or sitting, or from excessive occupation in the upright position.

Curvature of the spine may exist for a long time quite unnoticed by persons who are ignorant of orthopædic studies. To the practised eye, however, of a professional observer, it is usually indicated by some slight irregularity of the shape; as, for example, the greater elevation of one shoulder than of the other, or by some awkwardness in the attitude, manifested by the girl when she is standing or walking. Unfortunately, parents and teachers very often fall into the grievous error of imputing to wilfulness of temper, what is, in truth, the effect of an incipient deformity, and they attempt to rectify the evil by punishing the child, instead of by consulting their medical adviser.

That late most excellent observer, M. *Delpech*, who has, perhaps, done more for the advancement of scientific orthopædy than any other writer, has some good remarks on this subject.

"At the age," says he, "when deformities usually commence, young persons

have scarcely any other motive or calculation for their conduct, than that of instinctive impulse. What mere freak of mind, we might ask, would ever lead them to acquire strange and awkward attitudes, which have neither meaning nor convenience? We may rest assured, that such attitudes are the result of some positive fault in the organisation; and hence, although the patients themselves have no idea of its existence, it is the duty of those, who have the charge of them, to find it out. Nothing is more blameable than the too common practice of punishing young persons under such circumstances; for their will has, in reality, nothing to do with the awkwardness of their attitudes.

"The weights, with which certain parts of the dress are loaded, and the straps and buckles, &c. that are vainly used to prevent the unseemliness of shape or position, are all, more or less directly injurious: such means can never be of any utility; and fortunate it will be if they do not prove to be seriously hurtful. In truth, the very attitudes, of which complaint is made, should be regarded as emphatic symptoms, or palpable indications, that require to be attentively studied and examined by the medical man, and a just appreciation of which at a sufficiently early period, may serve to suggest the proper hygienic measures to be adopted."

It is by watching the manner in which a young person stands, and her attitude when she sits or gives her hand to another person, and so forth, that we may often detect the very commencement of the infirmity in question. For example, it is often observable that, when there is any deviation of the spine, the girl seldom places both her feet, while standing, in the same line; one is usually more advanced than the other. This is owing to the increased (*relatively*) length of the limb, on the side on which the concavity of the curvature exists.

Again, the girl will generally prefer to sit on a low-backed chair, so that she may be able to put her arms over its back, and thus give more support to the weakened spine. In walking too with another person, she will very generally give that arm which corresponds with the concavity of the curvature; and this, we need scarcely add, is almost always the left one; seeing that, in a very large majority of cases, the curvature of the spine leans with its convexity to the *right* side. A not unfrequent indicative symptom of incipient spinal curvature is a dull uneasiness or pain on one side of the chest, sometimes immediately under one breast, or perhaps in the epigastrium: although very seldom severe, it may vary a good deal in intensity at different times.

The usual method of examining the back, for the purpose of detecting spinal irregularities, is to judge by the line formed by the spinous processes of the vertebræ. By trusting, however, exclusively to the information thus obtained, the medical man is apt to fall into a mistake, as the deviation may have advanced to a considerable extent, before any alteration in the direction of these processes is at all perceptible. M. *Guerin* has quite satisfactorily shown that spinal curvatures arise, in the majority of instances, from the veritible twisting of the anterior parts or bodies of the vertebræ, the posterior parts or the rings and the spinous apophyses being but little affected, until the deformity has made more progress. We should therefore remember that the dorsal spine may appear to the eye perfectly straight, while the transverse processes, which participate in the torsion of the bodies of the vertebræ, already indicate the state of the column by the peculiar appearance of the ribs and the deep-seated muscles, which lie in the vertebral hollows. The ribs, being fixed to the extremities of these (the transverse) processes, necessarily experience a displacement backwards, when they are twisted by following the direction of the bodes of the vertebræ. Hence arises the projection of the vertebral hollow, along the whole extent of the deviation. This abnormal projection always corresponds with the convex side of the column. In part, it is real and absolute; and in part, it is relative or owing to the depression of the

hollow on the other side of the vertebræ, produced by the dragging forwards of the transverse processes and the ribs on this side.

The abnormal prominence of one of the vertebral hollows (gouttiers) may therefore be regarded as a fundamental character of incipient curvature of the spine. The seat and degree of this prominence are always proportionate to the extent of the irregularity. It is usually most perceptible in the upper part of the back, in consequence of the scapula there increasing the projection of the ribs, and thus rendering the deformity more apparent. This is the reason of the circumstance that most parents notice the awkward elevation of one of the shoulders, before the back is even suspected to be the seat of the evil.

At first only a single deviation is usually discoverable; but, in course of time, one or more others are established: these may be called balancing or counterpoising curvatures. They are always in the opposite direction from the primary one; and seem to be induced by Nature, to enable the trunk to recover its original centre of gravity, which had been deranged by the first deviation. Hence it happens that, in many cases, we may observe several alternate projections and depressions along the line of the vertebral column.—*L'Experience.*

M. Pouchet on Fecundation in Mammiferous Animals.

The phenomena of generation in the human species follow certain simple laws, which are perfectly analogous with those which prevail throughout the whole animal kingdom, except among the very lowest members of the scale. Such is the opinion of our author, who, in this respect, seeks to establish the operation of a much more comprehensive principle than either M. *Duvernay* or M. *Bischoff*—his talented rivals in this interesting field of inquiry—have yet ventured to enunciate. These two last-named gentlemen admit the entire conformity of the phenomena of generation in the different families of the Vertebrated family; but they do not attempt to trace the analogy among the Invertebrata. Whether M. *Pouchet* is strictly correct in all his views, can be determined only by the results of future researches; but all must admit that his recently published work entitled —Théorie positive de la Fecundation des Mammifères basée sur l'Observation de toute la serie Animale; Paris, 1843—deserves the highest praise for its ingenuity and talent.

He is of opinion that in all animals—except perhaps in the very lowest groups—the fundamental phenomena of generation consist—1, in the production of a certain number of ovula or eggs, contained within an organ called an ovarium, and—2, in the subsequent fecundation of these ovula by a special fluid secreted by the male organs.

The ovula are expelled from the ovaria at regular determinate periods or epochs, but they never become developed, nor produce living germs, until they have been brought into contact with the seminal fluid. If this contact be wanting, they become decomposed and cease to exist.

The contact of the vivifying fluid takes place in a special part appointed for the purpose, although its relative situation to that of the ovarium varies much in different animals. It may however be asserted, as a general principle or law, that the ova must have attained to a certain degree of development and been discharged from their lodgment in the ovary, before the action of the seminal fluid can take place effectually. It is usually during its *trajet* along the sexual canal, that the ovum becomes fecundated. Very often, however, this act takes place entirely out of the body of the female; as, for example, in fishes and reptiles. When this is the case, we may suppose that, even in the ovary, the reproducing bodies or ova have not yet attained that degree of development, which is necessary before they

can receive the vivifying impression: often, too, the seminal fluid could not reach so far as might be requisite to impregnate them.

No doubt can reasonably be held as to the identity of the generative process in all truly oviparous animals. The extreme smallness of the ova, when first discharged from the ovaries, in certain viviparous members of the vertebrated class, caused them to be long entirely overlooked; and, indeed, it is only of late years that they have been satisfactorily seen and examined. Hence arose the uncertainty of opinion as to the mode in which generation was effected in these animals; and hence the reason that it was believed by many physiologists that the process was quite distinct from that followed in oviparous animals. The researches however of modern inquirers have clearly shewn that, in all animals alike, and in the human subject also, the same general law holds good—viz. that ova are invariably formed, and are expelled from an egg-bearing organ, known by the name of ovarium. There is thus a very intimate relationship and affinity between the various tribes of the animal series, however widely these may differ in point of complexity of organisation and variety of outward form.

It is only because the ovum of the human subject was examined when out of the ovarium, and after it had undergone a certain degree of development within the cavity of the uterus, that physiologists were led to regard it as exhibiting important differences from that of other mammals and of birds. But, if it be studied while yet in its formative *nidus*, we cannot fail to perceive that it is in every respect similar to the ovum of these animals, with the exception of its being unusually small: in fundamental structure, and in physiological import, both are entirely alike.

Moreover, observation and experiments have abundantly proved, in the most convincing manner, that the processes of fecundation and of the development of the ovum obey the same laws in the woman, as in the females of the inferior animals.

The ova, when once formed and discharged from the ovary, become developed either within or without the body of the animal, after they have been exposed to the influence of the spermatic fluid: but the conditions, which they must present for this act, are not manifested, until they (the ova) traverse the generative organs. The difference, which exists between oviparous and viviparous animals in this respect, is not so important as might be imagined; for, in truth, there is a gradual, and not any abrupt, transition from the one tribe or family to the other.

In all animals, the ova are discharged at determinate epochs, which have a manifest relation with the periodic excitement of the genital organs. It has never been disputed that, in birds, reptiles, fishes, and in the invertebrata, there is a regular and determinate formation of ova; and, even in the case of mammiferous animals, although the function of the ovaries was never well understood, it was notorious that reproduction generally took place at fixed and regular periods. With respect however to them, and also to birds, it should be borne in mind that fecundation may be repeated much more frequently, when the animals are living in a state of domesticity, than in their natural condition. But we are not to infer from this circumstance, that there is ever a continuous and uninterrupted action in the ovaries. The best laying hen rests during cold weather; and often we find, in the case of our domestic animals, that when we force them as it were to copulation, at unseasonable periods, the act is unfruitful; because it takes place when they are not naturally in *heat*. It is quite a mistake to suppose that the season has nothing to do with the process of reproduction, even in the case of those animals which, from living in a state of domesticity, are so much more frequently rutting, than when they are in a state of nature. We may therefore assert that, in all animals without exception, the escape of ova from the ovaries takes place only at stated intervals.

The period at which this escape occurs in most mammiferous animals, is indicated by the turgescence and excitation of the genital organs; in some there is a sanguineous discharge from the vagina at the same time. Now the same holds good in the human species. The female is subject to phases of excitation, and phases of intermittence. It is only during the first that the ova are produced, and that fecundation is possible. If the periods, when reproduction is possible, are very frequent in the case of women, this is manifestly owing to the comforts of social life. But even with her, we may follow the trace of these intermittent periods, and determine the epochs of their return with precision, just as we can do in the whole Zoological series.

In mammiferous animals, fecundation never takes place, except when the emission of the ovules coincides with the presence of the seminal fluid; in other words, impregnation can only occur when the ovum, divested of the coverings it had in the ovarium, is carried forwards free into the genital passages, and is there exposed to the action of the vivifying fluid.

The discharge of the catamenia in the human female corresponds with the phenomena of excitation, which the females of all, and more especially of the mammiferous, animals exhibit at their periods of *heat*. In certain tribes of animals there is a red-colored discharge from the vagina at the same time; in others, this discharge is only a mucous one; but in both instances it is the result of the same cause, viz. the erethism of the internal organs. It is not, therefore, strictly correct to say, that the human female alone is subject to a periodic discharge from the uterus, as a similar or analagous phenomenon takes place in all mammiferous animals at certain determinate epochs. Much depends in this respect on climate, mode of life, &c. In some nations, the menstrual flux in women is scarcely sanguinolent at all; and every now and then, we meet in professional practice with instances where conception readily takes place, and yet the female has never menstruated at all. The identity between menstruation in the human female and the epoch of rutting in the lower animals, being admitted, and as it is only at this epoch that fecundation is possible in the latter, we may fairly infer that menstruation should be regarded as the monthly index of the generative capacity in the former.

Fecundation has an intimate and constant relation with the menstrual flux. It is, therefore, easy, in the case of the human female, to determine with precision the inter-menstrual period when conception is physically impossible, and that when it may probably occur. It is universally admitted that conception takes place most readily about the time that immediately follows a menstrual period. But certainly this is not always the case; and we have every reason to believe that impregnation may occur three, four, or even seven days, if not upwards, after the secretion has ceased. To understand this aright, we should bear in mind that this act does not always take place at the moment of coition, but may occur some time after, when the ovum, detached from its *nidus* in the ovarium, comes to pass through the organs still moistened with the spermatic fluid.

Properly speaking, there is never such a thing as an ovarian conception. Doubtless, it is possible, in some extraordinary cases, that an ovum, while escaping from its capsule, may be fecundated by the semen which the dilated end of the Fallopian tube may shed upon it; and then, that it may become developed on the surface of the ovarium, forming adhesions and connexions with this organ. But this supposition, it will be observed, is very different from believing that an ovum ever becomes impregnated, while it remains in a Graafian vesicle that is covered with its peritoneal lining.

The views of M. *Pouchet* are in accordance, as we have already said, with those professed by M. *Duvernay* and M. *Bischoff*. They all agree on these important points—1, that generation is effected (at least in vertebrated animals) by means of ova which are formed antecedently to conception; 2, that the for-

mation of the ova is quite independent of the action of the seminal fluid; 3, tha the process of fecundation, however, requires the ova to be impregnated by this fluid; 4, that the periods of rutting in animals correspond with the periods of menstruation in the human female; and 5, that the resemblance between these periods enables us to form an idea of the probabilities of fecundation, in the various tribes of animals.—*Gazette Medicale.*

MARRIAGE, IN A SOCIAL AND MEDICAL POINT OF VIEW.

Polygamy, so far from being favourable, as might at first be supposed, to the increase of population, is found by statistical experience to be most baneful, by destroying the appointed equilibrium between the two sexes, and by giving rise to a race that is feeble and puny alike in mind and body. This is a fact abundantly proved by past history, as well as by the actual condition of many nations in the East at the present day.

On the other hand, Celibacy is equally, and more directly, injurious to the interests of society; because, not only is the amount of offspring that might be expected, thus directly curtailed, but the proportion of deaths is found to be considerably higher among bachelors than among married men.

"If," says M. *Marc*, "we take *four* as about the average number of children born in the married state, it will follow that, in the space of from 25 to 30 years—the ordinary duration of fecundity in the female—a hundred celibitaires have deprived society of at least 360 citizens. Was there ever a war so destructive or so depopulating as to cause such a baneful result to society as this!"

Montesquieu long ago remarked that illicit connections contribute but little to the propagation of the species: and the experience of every nation fully bears out the truth of this observation. The excesses, which most unmarried persons indulge in, render such connections very generally unfruitful; and, moreover, of the small number of children, that are the offspring of debauched intercourse, the greater number perish from want of due attention after birth.

Thus nature, as well as religion, clearly shows that reproduction, to be successful on a great scale, must be sought for only in the married state. The laws of every country, and of every age, have alike recognised the truth of this principle. The higher privileges and superior protection, awarded to the offspring of legitimate unions, bear abundant testimony to the fact.

Not a little difference of opinion has existed among moralists and political writers, as well as among medical men, as to the proper age at which marriage should generally be contracted. The politician has looked at the question only in, what may be called, a statistical point of view, as far as it affects the population and powers of subsistence of a country; the moralist, in its relation to the manners and social virtues of the state; while the physician has attended more especially to the influence exercised thereby on the hygiene and physical vigor of the inhabitants.

Most of the economists (as they are called) in the present day, with *Malthus* at their head, have recommended that the period of contracting marriage in both sexes shoutd be considerably retarded. They allege the following reason for this advice.

It is an admitted fact, that the population of a country has a tendency to double itself in about 25 years, and that its increase goes on in a geometrical ratio, while the powers of subsistence, under the most favourable circumstances, can never be made to advance in anything like the same degree. According to the calculations that have been made, 100 acres of the most productive ground, which may be able to subsist, in the present day, a hundred persons, would not be capable of producing, even in the course of 300 years' cultivation, food sufficient

for 200 persons; while, in the same period of time, the offspring of these hundred persons might, according to the geometrical ratio of increase, amount to no fewer than 409,600 individuals.

We do not dispute the truth of these statistical statements, and we willingly give credit to the good intentions of M. *Malthus*,—who, it should be remembered, has never published the principles of his system to the extravagant, and occasionally also the immoral extent which some of his followers have done; but we must be permitted to question their soundness even in a mere social point of view.

* * * * *

There has been considerable difference of opinion as to the earliest period of life, at which marriage should be contracted. Some have hastily said that, whenever the catamenial secretion is fairly established, the girl is quite capable of conceiving. Although the occurrence of this peculiar function is unquestionably a sign or indication of the commencement of the reproductive faculty in the female, it does not necessarily follow that the person can at once become a mother of healthy children. *Burdach* very wisely remarks that, "the genuine maturity of the system, to which we give the term of *nubility*, differs very materially from mere puberty. It is quite necessary that an organic power or faculty should exist for some time, before it is called into exercise, in order that it may be fairly and fully developed, and be able to exercise all its designed influence and powers."

Premature sexual connection is as injurious in the case of the human species as of the lower animals, and alike to the parents and to the offspring.

The same law holds good in the vegetable world. Young plants quickly perish, if they begin to bear flowers very early; and dogs and other animals seldom attain their full strength and size, if they are allowed to obey their generative instincts at first. The finest breeds of sheep, horses, cattle and swine are derived from a parent stock that had reached perfect maturity.

OBSERVATIONS ON INFANTICIDE. By M. DUVERGIE.

Infanticide is defined, in the 300th Article of the French Penal Code, to be the Murder of a new-born infant. There is some degree of obscurity in this definition, arising from the circumstance that no reference is made to the question whether the infant, at the time of birth, is *viable* (capable of supporting life) or not.

We must therefore inquire whether it is sufficient that the child, in such a case, be born merely alive or *quick*—or if it is necessary that it be also *viable*.

It is important to attend to this distinction in all considerations of Legal Medicine, which have reference to the crime of Infanticide. On the one hand, a fœtus may possess a most vigorous *vitality;* but either from being prematurely born, or from some other cause, it may not be capable of living after being separated from the parent; and, on the other hand, it may be perfectly *viable*, and yet it may be still-born, or dead at the period of birth.

In reference to the important question of succession to property, the infant, when born, must, according to our laws, be not only *quick* or alive, but also *viable;* and many of our best jurisconsults have contended for an extension of the same principle in cases of alleged Infanticide.

For example, M. *Rogron*, in his commentaries on the Penal Code, says: "An indispensable condition to make out a case of Infanticide is, that the child was born *viable* (habilis vitæ.) The mere circumstance of its having uttered a few cries at the time of birth is not a sufficient proof of this, if the organisation shows that the life, which seemed to animate it, were only 'un souffle passager.' The infant, which when born is not *viable*, is not deemed to have an existence in

the eyes of the law; and consequently there cannot be murder of a being, that is not alive."

M. *Duvergie* differs from M. *Rogron* in the interpretation of this question. He is of opinion that, to establish the crime of Infanticide, it is only necessary to show that the child, when born, was quick or alive—whether it was *viable* at the time, or not.

The question of Vitality has, he thinks, nothing to do with criminal, although it certainly has with civil, cases.

It has been doubted by some writers whether the law respecting Infanticide can be made to apply to those cases, where the infant is born before the full period of gestation: but this is evidently an untenable objection; as it will be observed that the code does not specify or mention any particular period of development, and merely uses the phrase *new-born*. The crime of Infanticide may be committed upon a child of eight, seven, or only six months of intra-uterine life, if it can be proved that, at the time of delivery, it was living, even although it may never have breathed.

M. *Duvergie* quotes a case, on which he was once officially called to report, and in which he gave an opinion that the child had been murdered; although, from the state of the lungs found on dissection, it was evident that respiration had never taken place. The fœtus was between the seventh and eighth months of its age, and was well formed in every part. On examination, a deep cut was observed on the crown of the head; and within, as well as on the outside, of the cranium there were distinct marks of severe contusion.

The lungs at once sunk in water; and, when squeezed under its surface, no bubbles of air were perceived to arise.

It is right that this important question—whether the circumstance of breathing having once taken place is to be considered as necessary to our admission of the life of the child, in cases of alleged infanticide—should be settled. Whatever opinion is come to, it is quite obvious that medical men in particular should ever bear in mind the important difference between *vitality* and *viability*.—*Annales d'Hygiene, &c.*

ON CERTAIN PERIODIC OR INTERMITTENT AFFECTIONS OF THE EYE.

The inflammations of the eye and of its appendages, like a great number of other inflammatory affections, are occasionally observed to exhibit a distinct character of intermittence.

In some cases, the disease returns at distant, although nearly regular, periods, and at certain seasons of the year; while, in other instances, the attacks recur at stated hours every day, or regularly after the lapse of two or three days. It is especially necessary, in a practical point of view, for medical men to be acquainted with the latter description of cases; because, if the intermittent character or type of the disease is not recognised, a depletory treatment may be persevered in for a most unnecessary length of time, to the great prejudice of the patient's general health, and to the decided aggravation of the local malady. The disease is not so unfrequent as many suppose.

Several of the older writers seem to have been well acquainted with intermittent Ophthalmia.

In the works of *Morton*, *Hoffmann*, *Van Swieten*, *Sauvages*, &c., we meet with many very interesting cases of ophthalmia, which, after resisting all antiphlogistic remedies, speedily gave way to the use of anti-periodic medicines. Bark and Arsenic are, as a matter of course, by far the most efficient remedies. The difficulty lies not in the treatment, but in the diagnosis, of the disease. Unless the existence of the intermittent type or character is detected, no local application will be found of permanent advantage. If the inflammation be of recent date,

perhaps no Collyrium is better than poppy decoction applied warm; but if it has existed long, a weak solution of Sulphate of Zinc—to which a little Hydrocyanic Acid may be often added with great advantage—will be most expedient.

It deserves to be noticed that, intermittent Ophthalmia is not unfrequently associated with Neuralgia of the supra-orbital nerve, or *Brow-ague*, as it is often called.—*Gazette de Hôpitaux*.

MEDICAL MEMORANDA.

The following rather fanciful observations are from the pen of M. *Gouraud*, the chief physician of the Invalid Infirmary at Avignon in the South of France.

Reciprocal Influence of the Nervous and Sanguiferous Systems.

The bloodvessel and the nervous fibre are the first parts which receive life, and the last which lose it. Anatomy shows that they are always associated together in the cellular substance, which serves as a bond of union between them; Physiology displays them invariably acting in unison,—and Pathology finds them very generally acting the one upon the other. Let us cite a few examples in illustration of these propositions:

A young girl, returning home one morning, was insulted by a soldier who clasped her round the waist. She chanced to have the catamenia upon her at the time; the secretion was at once checked, and did not again return.

The mother of one of our young soldiers in the army of Italy, 1798, was told in our presence of the death of her son: she started up for a second, and the menstrual discharge ceased that very moment.

These are instances of the action of the nervous on the sanguiferous system: the following exhibit the action of the sanguiferous on the nervous.

A young Creole girl, of an hysterical constitution, was seized with spasm of the throat, which for two days prevented her from swallowing any thing. She was bled; and, from the moment that the blood began to flow, this spasm gave way, and she could swallow with ease.

A plethoric woman is advanced beyond the middle of pregnancy without having quickened; draw a few ounces of blood from her, and the first movements of the fœtus will probably be felt forthwith. * * *

Of Asphyxia.—What do we mean by this term?—the accidental privation of all the *signs* of life. This sudden death may be only apparent; all the organs of the body do not usually die at one and the same time. The popular saying, that "the eyes are the mirror of the soul," and the results of various experiments on animals, seem to warrant the belief that the eyes are (probably) susceptible of surviving the other organs, and that a spark of life may remain latent in a nervous filament or a minute bloodvessel of the eye, for a brief time after the cessation of vitality in other parts. *Flourens* tells us that, "when the brain, properly so called, is removed, the animal loses all intelligence; but in reference to the eye nothing is changed. Objects continue to be painted on the retina as perfectly as before, the iris continues to contract, and the optic nerve retains its excitability."

Let the medical practitioner therefore bear in mind, when he is called to a case of asphyxia, which is the nerve and the bloodvessel that are the last to die: let him but breathe on this spark; and he may have the happiness of re-lighting the torch of life; *vitæ lateat scintillula forsan.*

One morning in the Autumn of 1840, I happened to be passing along the Rue de Vaugirard, when I heard a cry of alarm. A man had been just drawn out from a sewer, in a state of complete asphyxia: no pulse was to be felt, and no movements of respiration visible: the body however retained its heat, although in every other respect all signs of life had quite ceased. I at once opened a vein

in the arm; the blood spouted out to some distance in a continued stream: still no mark of returning vitality. I then separated the lids of one eye, and jerked a few drops of brandy on its surface: the lids at once contracted upon it. The attendants were delighted; *anima enim ipsius in ipso est.* The application of the brandy was repeated to both eyes; the muscles of the face became retracted; the pulse began to be felt, and at length the man was observed to breathe. A spoonful of cold water was put into his mouth, and he swallowed it. At the end of two hours, 'le mieux fut decisif,' and subsequently he quite recovered.

M. *Gouraud* seems to have but little faith in the employment of artificial respiration in cases of asphyxia. He says, in reference to the case he has just reported, "pulmonary insufflation was not tried! it would have been useless, as the office of the lungs is to maintain personal life, not to restore it when it has been suspended. The relief must therefore proceed from a higher source,—that is to say, from the two first moving powers of life,—the nervous and the sanguiferous systems."

Such reasoning as this, to say the least of it, is certainly not very satisfying: May not an impression be made on the nerves of the air tubes by the insufflation of air along their canals, just in the same manner as an impression is made on the opthalmic nerves by applying a stimulant to the eye?—*Archives de la Medecine.*

M. DUMAS ON THE FATTENING OF CATTLE.

No subject is occupying more attention in the present day than Animal Chemistry. The researches of *Liebig* in Germany, and of M. *Dumas* and others in France, have given, of late years, a strong impulse to this curious and very important branch of knowledge. The latter philosopher, in conjunction with MM. *Boussaingault* and *Payen*, has recently published a Memoir, the object of which is to ascertain the mechanism, so to speak, of the accumulation of fat in the tissues of the different organs of the body on the one hand, and of the formation of milk in the mammæ on the other.

It has hitherto been the general opinion that all fatty matters—whether in animals or vegetables—were the product of a certain eliminating function or process, that is effected at the expense of the food that is taken into the system. The researches however of these three gentlemen tend to show that the fatty substance is primarily formed in plants, and that it passes ready formed into the body of the animal; and is then either immediately consumed in the production of animal heat, or else is stored up for a time in different parts of the body, as a magazine of reserve for the respiration at some future time. The main point of their researches is to show that the fat of animals is not a product of the organisation of their own bodies, but is derived solely and ready-prepared from the vegetable world. The fatty degeneration, to which animal substances are subject by slow decomposition, is supposed to be in some degree an argument in favour of this idea. Our authors believe that the *adipocire* is not generated after death, but merely becomes exposed and separated from the fibrine, with which it was previously incorporated, in consequence of the process of slow decay.

Some facts in the physiology of animals appear to countenance this opinion. For example, there is certainly a great difference in the chyle of carnivorous animals, according as they are fed, on the one hand, on vegetable matters which are rich in feculæ or sugar, or on lean meat; or, on the other hand, on food that contains a good deal of fatty matter. In the first case, the chyle is found to be transparent and serous, and it yields very little to æther when mixed with it. On the contrary, in the second case, it is observed to be opaque, of a creamy aspect, very rich in globules, and gives a great deal of oleaginous matter to ether. Now we can follow with perfect accuracy the fatty ingredients of food (converted by the process of digestion into a sort of emulsion) in their passage, first into the

chyle and afterwards into the blood—in which it remains for a length of time unaltered, and, so to speak, at the disposal of the system. This progressive transmission of the fatty ingredients of the food, through the alimentary canal into the blood, is believed to take place without their undergoing any change in their physical properties.

This opinion is probably quite correct in reference to Carnivorous Animals; but, if we extend it to the Herbivorous, two difficulties will be found to present themselves to our notice. It may be asked, where can we find in plants a sufficient quantity of fatty matter to account, not only for the production of milk, but also for the fattening, at the same time, of the cattle fed upon them? Is it not more simple, it may be said, to suppose that the butter and fat are produced by some process of transformation of the saccharine matter, which vegetable food is known to contain? In answer to this objection, we may state that the numerous experiments made by M. *Payen* on the grasses and other vegetable substances, on which cattle feed, will serve to explain away most of those difficulties. They have clearly shown that fatty matter exists very generally in the texture of most plants that serve as food for animals. Though most abundant in the substance of the seed, it is present also, in varying quantities, both in the stem and leaves. In the latter organs, the fatty matter exists usually in the form, and having the characters of wax. This, being received into the stomach of an herbivorous animal, gradually finds its way into the blood; and, by then being exposed to the oxygen of the air during the process of respiration; it becomes partially oxydated and is converted into the *Stearic* and *Oleic* Acid, which we find in tallow. By undergoing a second elaboration in the bodies of Carnivorous Animals, this same matter, being oxydated anew, produces *Margaric* Acid—characteristic of true fat. At length, when still more highly charged with oxygen, the volatile fatty acids of animal bodies, such as we find to be present in the blood and perspiration, are generated. It is always to be remembered that these substances may be converted, by a process of slow Combustion, into Carbonic Acid and water, and be thus eliminated from the system.

Independently of the fatty matter which herbivorous animals derive, ready formed and in a direct manner, from the plants which they feed upon, the researches of M. *Dumas* have shown that one of the principles of sugar—the olefiant gas—may (after various transformations) have something to do with the formation of fat in their bodies; and, therefore, that part of the adipose deposits of these animals may perhaps be thus accounted for. But this is unquestionably a very inferior and subordinate source of their supply; and is certainly not the chief source, as supposed by *Liebig*. This distinguished chemist, supposing (but here he is surely mistaken) that Maize, or Indian corn, does not contain any oily matter, has concluded that it must be from the fecula of this grain that cattle, fed upon it, derive the elements of their fat. The French chemists, on the other hand, maintain that Maize does contain oily matter in considerable quantity, and they are of opinion that this passes directly, and without having undergone any essential change in its composition, into the blood of the animals to which it is given for food.

This, and indeed most other questions of Vegetable Organic Chemistry, are still "sub judice;" and doubtless, it will require many and most patient inquiries to be made, before all the difficulties are satisfactorily solved.—*Annales de Chemie.*

The Hæmospasic Method of Treatment.

Many medical men may perhaps not even know the meaning of the word *Hæmospasia*, although the merits of the practice, which it denominates, have been canvassed at great length some years ago in the Academy of Medicine, and valuable

reports from the pens of MM. *Magendie* and *Serres* have been made, on two different occasions, upon the subject. The Monthyon prize has been twice awarded to the talented author of the discovery, M. *Junod;* and the Administrative Council of the Metropolitan Hospitals have expressed their marked acknowledgment of the great benefits which he has bestowed by his discovery on therapeutic medicine. He has uniformly proceeded with a truly scientific caution in introducing his new remedy to public notice. Not content with trying it on numerous occasions in his own practice, he has sought the opinion of his brother-practitioners, and solicited their frank and unbiassed judgment. In this respect, he has acted very differently from certain medical men of our times, whose only ambition seems to be to win popular applause, and a rich harvest of fees. The very quiet and unobtrusive course, which M. *Junod* has followed upon all occasions, will partly account for the comparatively little attention that has been paid to his ingenious discovery.

Hæmospasia (from αιμα sanguis, and σπαω traho, sugo,) is a means of producing a powerful *revulsion* of the blood from one part, and an equally powerful *derivation* of the blood to another part of the body, by removing the atmospheric pressure from a large extent of surface, as from one or both extremities at the same time. It is, therefore, so to speak, quite the same as dry-cupping; only on a large scale. "To produce an intense *raptus* of the blood from the deep-seated to the superficial parts of the body, to dissipate congestions, to counteract morbid fluxionary accumulations, and to relieve any organ or organs that may be oppressed with a surcharged circulation—such is the aim and object of the new therapeutic agent. By its means, we are enabled to withdraw, or displace, or accumulate, or concentrate a part of the mass of blood, according as the varying circumstances of the constitution, age, existing disease, and so forth, may render expedient."

In 1835, M. *Magendie* alluded to its great utility as a certain method of instantaneously attracting or *deriving* towards the extremities the blood, which would otherwise become congested in the viscera of the great cavities of the body;—and this, too, without causing any direct loss of the vital fluid.

That the remedy is one of no ordinary activity, is sufficiently evidenced by the immediate effects which it often produces. The face is rendered pale; the pulse becomes slower than it was before; at times there is a tendency to syncope; and often there is a good deal of disturbance of the gastric and intestinal function. All these symptoms are referrible to the powerful derivation of the blood from the heart and great bloodvessels towards the extremities of the body.

As patients usually express their feelings, under the operation of remedies, much better than any medical writer can describe them, it is always well to note such observations down at the time. One said that, when the *hæmospasic* apparatus was applied, he felt as if he was quite deprived of his blood; another compared the sensation as if he had to bear the weight of ten foot-baths all at once; while a third observed that his life seemed to descend to his feet.

Hæmospasic revulsion has been employed with useful effects in a variety of inflammatory and congestive diseases. When the object of the physician is to divert the flow of blood to any internal part, and to relieve the accumulation, without having recourse to sanguineous depletion, no remedy is more worthy of trial than M. *Junod's* apparatus. How important is it to be able to do this in many cases, where the patient is of a delicate constitution, and where the system, if once much reduced, will inevitably be long of recovering its lost energies! Under such circumstances as these, the Hæmospasic method is a truly precious resource. The blood is withdrawn from the suffering part, and yet not a drop of it is lost. It has, however, been objected that, when the apparatus was removed, there would be forthwith a violent reaction, and that then the blood would be propelled with greater force than ever to the seat of the disease, so as perhaps to produce a more intense congestion there than had existed even at the first.

But this objection, though seemingly plausible, is contradicted by the results of experience: for, as the Hæmospasic injection or plethora takes place chiefly in the capillary vessels, the tumefaction, thereby induced, is found to subside very slowly and gradually. We have seen the apparatus applied in a great many cases, and have never yet observed the slightest inconvenience from its adoption in a single instance. As a matter of course, judgment and experience are as necessary for rightly using this, as they are for the employment of any other potent remedy. M. *Junod* having made no secret of his method, it has been indiscriminately recommended by not a few practitioners in this metropolis, who are ever on the look-out for any novelty, and who are much more likely to be adepts at *drawing* the fees than the blood of their patients. We cannot do better than close these remarks with a paragraph from his little work, entitled *Methode Hæmospasique at Appareils du Docteur Junod*. 1843. *Paris*:—"It is not a question—and this remark I make most emphatically—of a secret remedy, of a mercenary industrialism, or of any mere speculation whatsoever. It is a remedial method, based on the acknowledged laws of animal physiology, and tested by numerous experiments and observations. I address myself only to men of education and practical knowledge, and solicit of them a patient and cordial examination of my assertions. With confidence I may say, alike to my professional brethren and to the patients, to the most censorious physician as to an enlightened public, come and see, examine and judge for yourselves.—*Gazette Medicale*.

Remarks.—The Hæmospasic Method is, in our opinion, rather an ingenious suggestion than a useful remedy. In certain cases of chronic maladies, it may doubtless be used with advantage, just as any of the other medical novelties of the day not unfrequently are; but it is not likely ever to be so popular as they, from the inconvenience of its application, and the uncomfortable feelings which is often produced at the time. Let it not be supposed that we class M. *Junod* with the *puffing* doctors of the day—whether their panacea be cold water or steam baths, pills by the dozen or fractionary parts of a grain. He is far too honourable and honest a person to descend to anything unworthy of a professional gentleman. Nevertheless, we must protest against any laudation of his blood-attracting method in one or two diseases, in the treatment of which we find that it is recommended both by himself and others. For example, we are repeatedly told that it may supersede the employment of blood-letting in many cases of inflammation. What!—is there no other morbid element in this generic disease, save and except only the existence of a greater quantity of blood in the affected part than usual?—and is the human body so entirely a mere Hydrostatic machine that we can lessen or increase at will the actual quantity of blood in any part by simply regulating the amount of the atmospheric pressure upon it? Such a doctrine savours, we think, more of the 17th than of the 19th century; more of the times of *Borelli* than those of M. *Andral*. Has not the latter gentleman, within the very last twelve months, been teaching his countrymen—for, thanks to British sagacity, the instruction was not required on this side of the Channel—that there is an intimate and essential change in the proportion of the constituents of the blood in all inflammatory diseases? The relative proportion of the fibrine is considerably higher than in health, while that of the red globules is but little, if at all, affected. If such be the case, does it not follow, as an obvious inference, that the merely diminishing of the actual quantity of blood in any part, can never reasonably be expected to cure an inflammation of that part? We have often—long before the publication of *Andral's* recent researches on Hæmatology—urged this argument, as one of decisive and insuperable force, against the Broussaian doctrine of recommending excessive bleeding in Typhoid fever, and other falsely-called inflammatory diseases. It is not the quantity of the blood so much as its altered quality, that is at fault, like in the Pyrexiæ and in the Phleg-

masiæ; and it is only by paying due attention to the changes in the condition of the fluids, as well as of the vital forces which move them, that a safe and rational system of Therapeutics can be established. Such is the basis on which modern Humoral Pathology must be built.—*Rev.*

Miscellaneous Notices.

Utility of Calomel in Typhoid Fever.

Drs. *Lombard* and *Fauconnet* of Geneva sum up an elaborate account of their experimental inquiries on this important point of practice in the following words:—

"Calomel diminishes the mortality of Typhoid fever, and renders all its symptoms less severe, more especially those that indicate a disturbance of the Nervous centres. It tends to abate the danger of any thoracic complications supervening, and, without being able to check them altogether, it causes them to be less serious in their consequences, as well as less frequent in their occurrence. It modifies and corrects in a very remarkable manner the condition of the alvine evacuations, and usually serves to diminish any diarrhœa if present, and to bring all the secretions to a more normal state. It rapidly cleanses the tongue, and renders it and the mouth less parched; it dissipates tympanitic distention and colicky pains of the bowels, and appears to exercise rather a serviceable, than an injurious, effect on the gastro-intestinal inflammation, which not unfrequently complicates Typhoid fever." Drs. L. and F. attribute the efficacy of calomel in this disease to its constitutional operation, rather than to any direct effects which it may have on the abdominal viscera. They remark that, there is almost always a decided amelioration of the symptoms, when the gums become slightly affected with the mercurial irritation.

(The observations of these gentlemen are in accordance with the general experience of most medical men in this country. Mercury seems unquestionably to exercise a very marked, and, in most cases, a very serviceable influence on the course of Typhoid fever. Its *modus operandi* is probably twofold; *first*, by correcting and evacuating the secretions of the bowels; and, *secondly*, by altering and modifying the state of the circulating fluids, as well as the vital powers of the bloodvessels themselves. A favourite preparation with many practitioners is the Hydrargyrum cum cretâ, either alone or in combination with carbonate of soda, Ipecacuam, Dover's powders, &c. The use of this mercurial, at stated intervals —in doses of four to eight grains, every six, eight, or twelve hours—with the exhibition of saline draughts between each dose, is, on the whole, by far the safest medication that can be resorted to in the majority of cases of low fever.)

Microscopic Examination of the Tartar of the Teeth.

Hitherto this calcareous incrustation has always been regarded as a mere inorganic deposit from the saliva; but M. *Mandl* has been led, by his recent observations, to adopt a very different opinion respecting it. According to this gentleman, the tartar of the teeth is almost entirely composed of the skeletons or cases of infusory Animalculæ, agglutinated together by dried mucus; just as certain soils (so says the great German microscopic naturalist, *Ehrenberg*) consist of fossil Infusoria.

If a portion of the mucosity, which is adherent to the teeth, be mixed with a little water and heated, and then subjected to microscopic inspection, it will be found to exhibit a number of infusory Animalculæ, which are in active motion. Their shape is identical with that of the Animalculæ, known by the name of *Vibrio*. The presence of living Infusoria in mucosities was known to *Leuwenhock*; but the fact seems to have been forgotten, until revived by M. *Mandl*. Having

satisfied himself that they exist in the mucosities of the mouth, he set himself to ascertain whether they contributed to the formation of the tartar of the teeth; and he was not long in discovering that this substance chiefly, if not entirely, consists of dead *vibrios* cemented together by dried mucus. From this circumstance, may we not infer that these Animalculæ are provided with an inorganic calcareous covering to their bodies ?

It may be useful here to state that, according to the analysis of M. *Vauquelin*, the tartar of the teeth consists, in the 100 parts, of 66 of phosphate of lime, 9 of the carbonate, 14 of animal matter, and 3 of oxyde of iron and phosphate of magnesia.

Medical Geography.

"M. *Humboldt* has remarked, in reference to the botanical and pathological geography of the New World, that the highest limit of the *Melastomatous* plants is that also of the Yellow Fever. From this circumstance it may be inferred that the disease does not extend upwards beyond a certain elevation above the level of the sea. The Plague too obeys a somewhat similar law respecting its diffusion; for it is observed at Cairo that, while it is most prevalent in the low quarters of the city, it seldom affects the residents of the Citadel. At Constantinople, also, it very generally spares the Mountain of d'Alem-Daghe; and even the highest parts of the Seven Hills, on which this celebrated city is built, are generally exempt from it

A similar remark is applicable to the *Endemic* Cholera. Not so with the *Epidemic* variety of this disease; this mounts much higher; and, as a certain degree of elevation above the level of the sea gives a diminution of temperature that is equal to a certain approximation to the Pole, it was not difficult to predict that this pestilence would not spare the colder regions of the earth. No locality seems to be quite exempt from its invasion. The basins of the Caspian Sea and Oral lake, the level of which is considerably lower than that of the ocean, suffered severely from its ravages; while, at the same time, it is well known that many of the loftiest residences in India have not escaped at different seasons.

With respect to the influences, which the nature of the soil of a country may exert on the development and diffusion of certain diseases, it may be stated that the Plague, like all marsh diseases, is generally most prevalent in argillaceous districts; that Phthisis and follicular Enteritis prevail in chalky, while Epidemic Cholera seems to be quite as common upon one geological formation as upon another. Goitre and Cretinism are found in chalky countries almost exclusively. In examining the Endemic diseases of any place, it is very necessary to attend to the character and qualities of the water that is drunk by the inhabitants. The water at Oran in Algeria is found to contain twenty times as much solid matter, dissolved or suspended in it, as the water of the Seine."

Epizootic Gangrenous Angina.

This disease occasionally proves very fatal among all sorts of cattle. It is much more prevalent, and also more malignant, during certain seasons, and in certain localities, than in others. When the food is of a bad quality, and especially when the water given to the cattle for drink is impure, the disease, when it breaks out, is always very severe and distructive. The symptoms vary a good deal in different seasons. There is often a great prostration from the very commencement of the attack; and then the affection of the throat, and sometimes of the air-passages at the same time, is of a decidedly gangrenous character. In other cases, the symptoms are altogether of a more acute type: the pulse is full; the mucous surface of the nostrils and mouth exhibits a deep-red colour; the head, and more especially the ears, are very hot to the touch; and the animal evidently experiences much distress in swallowing. When the adynamic symptoms come on, the surface of the body and extremities becomes cold; the pulse is

small and soft; and the expired air has an offensive smell. Sometimes a sanious discharge flows from the mouth and nostrils; the deglutition and breathing become more and more difficult; and death soon follows. The Necroscopic appearances usually found are these—infiltration of the subcutaneous cellular tissue of the head and neck; a softened decomposed condition of the mucous membrane of the mouth and throat, and sometimes even of the larynx and bronchi; and a dark pitchy and fluid state of the blood.

Verminous Tumors in the Stomach and Bowels of the Horse.

M. *Valenciennes*, in a Memoir recently read before the Academy of Sciences, describes two kinds of these tumors,—according as they are situated in the pyloric extremity of the Stomach, or in the Colon of the Animal. The entozoa in the one case are not the same as those in the other. The tumors are usually situated between the mucous and the fibrous membranes of the gut, and are provided with one or more openings, through which the entozoary animals may pass into its cavity. These perforations of the mucous lining are seldom associated with any other lesion of its texture. The tumors are generally separated, by numerous folds or partitions, into several compartments; these, however, communicate with each other, and there is always a greater or less amount of viscid mucous contained within. This mucous, in some cases, concretes and becomes so indurated that the tumor at length acquires quite a scirrhous consistence.

Verminous tumors seem to be of very frequent occurrence in the equine race; for of 25 horses examined by MM. *Rayer* and *Valenciennes*, they were found to exist in no fewer than 11.

Tic Douloureux of the Face and Head.

M. *Ducros* recently communicated to the Academy the details of some well-marked cases of this distressing disease, which were rapidly cured by the use of strong ammonia, applied to the palate, gums, &c. with a camel-hair brush, so as to occasion a profuse discharge of tears and saliva. He requested the physicians of several of the metropolitan hospitals to repeat his experiments on a large scale; and the results of their trials have been, he says, most satisfactory.

(The strong Aqua or Liquor Ammoniæ, taken internally, will be found to be a most valuable remedy in many cases of neuralgic suffering about the face and head, odontalgia, severe nervous headache, &c. The best mode of administering it is to mix from 20 to 40 drops in a cupful of very thick gruel, and to take this at bed-time, or whenever the paroxysm of pain is present. The ammonia must be well blended with the gruel, else it will irritate very painfully the inside of the mouth and throat. It should produce a profuse salivation and lachrymation. In very severe or obstinate cases, it may be applied outwardly at the same time.)

The Epithelium-cells of the Intestines.

MM. *Gruby* & *Delafond*—two of the ablest microscopists of the present day—announce, as the result of repeated observations, that "the Cellules of the Epithelium, which cover the villi of the intestines, are—when the animal is fasting—transparent, of an elongated shape, and contain an oval nucleus, which is slightly granular, while the cells themselves exhibit a translucent ring (*bourrelet*) around it. During the act of chylification, these cells become much larger and more opaque; and within the ring, numerous minute molecules and globules are generally to be perceived. These molecules are transparent and resemble a good deal the globules of fat." These gentlemen subsequently describe the Epithelium-cells as having an aperture on their surface; this aperture being sometimes open, and at other times closed. They also describe a set of *Vibratile* bodies on the surface of the villi.

The villosities of the small intestines were found by them to have, in the living animal, a three-fold movement, which consisted in their being first elongated,

then contracted, and lastly in being moved from side to side. This movement may be compared to that, which is often observed in Entozoary animals.

Each Epithelium-cell is believed to have a quadruple function—1, to fill itself with the crude chyle; 2, to divide and attenuate this chyle and to convert it into a pure homogeneous fluid; 3, to expel this purified chyle into the chyliferous vessel; and lastly to absorb other substances dissolved in the digestive juices, and convey them to the vascular apparatus. The functions therefore of these cells present a remarkable analogy with those performed by the lowest and most simple forms of animalcular existence; and it is not therefore very wonderful that some physiologists have actually regarded them as independent beings. (Many of the observations of MM. *Gruby* and *Delafond* agree perfectly with those of Mr. *Goodsir*, to which allusion is made in the first article of the present Number on Formative and Structural Anatomy.)

Proximate Cause of Hæmorrhage.

M. *Andral*, in his recently-published Essay on Hæmatology, states it, as the result of his experimental researches, that some hæmorrhages are always connected with, if not immediately dependent on, a state of blood in which there is an excess of red globules; while others are very usually associated with an *hæmatosis*, characterised by a deficiency of the fibrine in the circulating fluid. The former are observed to occur in persons of a plethoric constitution; but they are far from being either as frequent, or as serious, as the second sort of the disease, such as takes place in scurvy and similar diseases. Is not this division of hæmorrhages very much the same as that adopted by the old writers, viz: into *active* and *passive*? —a division that is incompatible indeed with certain theories of modern times, but one with which neither clinical medicine nor therapeutic instruction can dispense.

(The remark made here is quite just. There are several kinds of hæmorrhage, just as there are several kinds of fever; and it cannot therefore be wonderful that the same treatment is not appropriate in all. One case may require bleeding, and nauseating purgatives; while another demands the use of powerful tonics and astringents. The *internal* exhibition of alum is, we think, too much overlooked in the present day, as a powerful means of arresting many hæmorrhages.)

Maschaliatria, or Medication by the Axilla.

Such is the new title of an old method of using remedies: it consists in merely depositing them in the axilla, and leaving them there to be gradually absorbed. Various medicines may be applied in this manner, either in the form of ointment, lotion, powder, &c. Accordingly, syphilitic affections have been thus treated with the blue ointment; agues with a pommade of quinine; and scabies with sulphur ointment. Professor *Forget* of Strasburg tells us that he has treated many cases of these diseases successfully in this manner. He proposes to try various other remedies according to the Maschaliatric (μασχαλη axilla, and ιατρος medicus) method; such as opium and nitrate of morphia, digitalis, strichnine, ioduret of potassium, either mixed with some unctuous substance, or in a state of solution. The cutaneous absorption in the axilla, he tells us, is more active than in almost any other part of the body. (A truly French proposal!)

Memoranda on Cutaneous Diseases.

M. *Emery*, one of the physicians of St. Louis Hospital, has of late been very strongly recommending the use of Pitch, internally as well as externally, in cases of Lepra, and of styrax balsam in certain cases of Lupus. Neither suggestion, however, can claim the merit of any originality. During the clinical attendance of M. *Alibert*, pitch was successfully used in a great variety of chronic skin diseases, such as Porrigo, Favus, Lepra, Impetigo, and even in Scabies; and, upwards of ten years ago, Dr. *Dauvergne* published a paper in the Bulletin

de Therapeutique, pointing out the good effects of Styrax balsam in certain esthiomenous or corroding ulcers. This gentleman has lately recommended a solution of the sulphate of iron as an admirable application in cases of Sycosis, Mentagra, and Gutta rosea. Sometimes he blends the powdered sulphate with charcoal, and applies it to the excoriated surface in the dry state. The internal remedies which he generally uses at the same time, are bleeding and purgatives in plethoric subjects, and the ioduret of potassium, when all symptoms of inflammatory irritation have been removed. (The Liquor Potassæ—given in doses of from 15 to 30 drops, three times a day—is an admirable remedy in many cases of inveterate skin disease. According to our observations, it is far more efficacious, and perhaps, too, less injurious than the potash in combination with iodine. The liquor potassæ may be given in milk, beer, decoction of Sarsaparilla, &c.

With respect to the sulphate of iron as an external application, we cannot believe that it possesses any curative virtues above those of the Sulphate of Zinc, or of the Sulphate of Copper that are in daily use. The White Vitriol is our favourite; and the best way of applying it is by dipping rags of soft linen in a tepid solution of the salt, and covering these with a piece of oil-skin. If used thus, the Lotion will not require renewal oftener than night and morning. In some cases, a little Hydrocyanic acid may be conveniently added to the Solution with advantage.)

Treatment of Rheumatism.

Two very different remedies are highly praised, at the present moment, by some of the French physicians, in the treatment of this very common disease. These are, the Sulphate of Quinine and the Nitrate of Potash. M. *Briquet* and a host of followers, descant, in terms of no measured commendation, on the virtues of Quinine; while M. *Martin Solon* is no less energetic in his laudations of his favourite. Neither of these gentlemen seems to be at all imbued with Homœopathic principles; as far at least as regards the doses which they administer; for the one is in the habit of giving from 15 to 20 grains of *Quinine*, and the other from half an ounce to an ounce and a half of the Nitre, at a *time*. We need scarcely say that we utterly disapprove of the indiscriminate practice of both.

Our chief motive for alluding to this subject at present, is to introduce the following sensible remarks by a writer in the Gazette Medicale, in reference to Dr. *Solon's* Memoir. "No one has ever questioned the perfect accuracy of the assertions made by this gentleman. As far as we can judge, we should say that the Nitrate of Potash, administered in large doses, is not only inoffensive, but is often very useful. There is, however, in all the statements and reports that have been made on the subject, an important blank which we should have wished to have seen filled up. Be it remembered, that not a few cases of Rheumatism have a natural tendency to relieve themselves by perspiration, if the fever do not run high, and the pains are not very severe; whereas, the disease is apt to be obstinate and unyielding, when the symptoms are otherwise. It certainly does seem to us that many of the cases, related by Dr. *Solon*, might have got well if nothing had been given, except simple warm drinks.

"This remark applies with equal force to every other remedy that has, at different times, been recommended for the cure of Rheumatism, as well as to the Nitrate of Potash. It requires, therefore, much more discrimination than is usually imagined, to determine with accuracy the genuine therapeutic effects of medicines."

Perfectly true. The credit that properly belongs to the *vis medicatrix naturæ*, is not unfrequently awarded to the medicines that are administered.

Medical Anecdote.

An old physician, on being asked his opinion of a new remedy, that was highly praised for its extraordinary virtues in a certain disease, very gravely replied,—"Depechez-vous de vous en servir, pendant qu'il guerit." A severe, but well-merited censure on the fond credulity, not of the public only, but also of many medical men. Hydropathy is curing vast numbers at present: how long will it continue to do so? Brandy and salt were in favour a twelvemonth ago; what has now become of them?—Veratria was a sovereign remedy against neuralgia a few years back, and the chemists were making a thriving trade of its sale at sixpence a grain: now, it is seldom asked for. Unfortunately, there always seems to be an eager desire for the discovery of something new; as if there were not remedies enough, if we but knew *when* and *how* to use them. The clever workman is seldom changing his tools. It is true, in medicine as in dress, that often "there is nothing so new as that which is forgot." Many of the vaunted discoveries and inventions of the present day have been found to be but the resuscitations of what was long neglected or perhaps concealed.

Statue to Bichat.

A statue has recently been erected in honour of this distinguished physiologist in his native town of Bourg (Ain,) and the ceremony of inauguration was performed, on the 25th of August last, with "un eclat vraiement extraordinaire." The Academy of Medicine, was represented by its Secretary, M. *Pariset*; the Faculty of Medicine of Paris, by M. *Royer-Collard*; that of Strasbourg, by M. *Forget*; Military Surgery, by M. *Hippolyte Larrey*; the medical men of Marseilles, by M. *Roux*; those of Lyons, (the cradle of *Bichat's* studies,) by MM. *Brachet*, *Barrier*, and eight or ten other gentlemen. As a matter of course, many eulogistic discourses and orations were pronounced on the occasion.

The statue represents *Bichat* studying the phenomena of life on the body of a young child; there is a half-dissected corpse stretched out at his feet. (A strange and most unseemly design surely! Has the illustrious Anatomist a scalpel in his hand?)

On the Cutaneous Affection called Molluscum.

The name given to this rather rare skin disease, is derived not from any resemblance which it bears to certain warts, tumors, or excrescences, but solely from it being supposed to have been brought from the Molusques (Molucca) Islands, where one form of it—which was described by Bontius in the 17th century—prevails epidemically. Most writers have described three sorts or species of it; viz.—1, the Endemic and contagious Molluscum of Amboyna; 2, the Sporadic and non-Contagious m.; and, 3, the Atheromatous m. described by *Bateman*. M. *Gibert* adds a fourth, which he calls Stearic m. A case of this variety he narrates at considerable length. It occurred in a patient, who was affected with chronic Jaundice at the same time. On different parts of the skin, there were numerous hard projections or knobs, sessile, indolent in character, and of a whiter colour than the rest of the skin. On examining them first with a strong magnifying-glass, and afterwards with various chemical re-agents, M. *Gruby* concluded that they were composed of a greasy substance, analogous to *Stearine*, deposited under the epidermis, and in the meshes of the true skin. Their size varied from that of a pin's head, to that of a good large pea, and upwards. One, that was almost as large as a hazel-nut, was removed with the knife: it was found to consist of a firm white substance, composed of globules that were soluble in æther, and not affected by acids.

M. Gibert saw another case, very similar to this one, so far back as the year 1829: the first patient too was affected with jaundice. From the circumstance of the co-existence of hepatic disease in both instances, M. *Gruby* suspects that the two affections are related to each other, in the way of cause and effect; and

that the *cholesterine*, that ought to be eliminated in the bile, becomes converted into the fatty matter that is found deposited in the cutaneous tissue. M. *Gibert* closes his observations by remarking that "the genus Mulluscum comprehends several species, which have no characters in common with each other except these —cutaneous excrescences that are indolent, of a firm consistence, having nearly the same colour as that of the skin, and generally incurable."

The Bisulphuret of Carbon.

This compound has been used (with decided benefit, it is said) by many of the German physicians internally in cases of Rheumatism, Neuralgia, chronic Gout, &c. and externally in burns and some cutaneous affections.

M. *Otto* of Copenhagen, recommends it very highly; the usual dose which he gives, is four drops of a mixture, composed of one part of the Bisulphuret and two parts of alcohol, given every two or three hours.

(We are not surprised that any compound of Sulphur should be serviceable in many cases of chronic rheumatism and neuralgia, as the simple element itself has no ordinary efficacy in all such complaints. A tea-spoonful of brimstone in a small cupful of milk, taken every night at bed-time for a week or two together, is one of the best of all remedies, that we know of, against old obstinate rheumatic aches, cramp of the legs, the pains that are connected with a varicose state of the veins, chronic sciatica, &c.

The well-known nostrum—the "Chelsea Pensioner"—that has so long had high repute in chronic rheumatism, is mainly indebted to sulphur for its virtues. It may be worth while to mention its composition. It is made thus:—

R. Flor. Sulphuris ℥ij.
Pot. Supertartrat. ℥j.
P. Guiaci ʒj.
P. Rhei ʒij.
Spir. Nucis Mysistic. ʒij.
Mellis q. s. ut fiat electuarium.

The dose, one or two drachms every morning and evening.)

A Royal Letter of Thanks.

The following very gracious epistle was recently sent by the King of Prussia to M. *Achille Compte*, a very able naturalist of France.

"I have received, Sir, with very particular satisfaction, the great work on Natural History which you have been pleased to transmit to me by Baron Humboldt. It cannot fail, not only to benefit science and public instruction, but also to render accessible, by means of its admirable drawings, the researches which, in the steps of the illustrious Cuvier, have shed a new light over the entire field of Animal Organisation.

"In thanking you for your present, I am pleased to transmit to you, as a token of my satisfaction, the large medal awarded for distinction in the sciences.

"I pray, M. Achille Compte, that God may keep you in His most worthy and holy care."

"FREDERICK WILLIAM.

"*Sans Souci*, *23d August*, 1843."

Clinical Review.

GUY'S HOSPITAL.

GUY'S HOSPITAL REPORTS. Second Series. No. II. October, 1843. Edited by GEORGE HILARO BARLOW, M.A. and M.D. Cantab. Fellow of the Royal College of Physicians, and Physician to Guy's Hospital; EDWARD COCK, Assistant Surgeon to Guy's Hospital; EDMUND L. BIRKETT, M.B. Cantab. Licentiate of the College of Physicians, and Secretary to the Clinical Society; J. H. BROWN, and A. POLAND. London: S. Highley.

THE Contents of the present Number are as follows:—

1. Observations on Pneumonia, and its Consequences; read before the Physical Society of Guy's Hospital, by Thomas Addison, M.D.—2. Observations on Lithotomy; by Bransby B. Cooper, F.R.S.—3. On the Pathology of cells; by Thomas Williams, M.B.—4. Case of Extirpation of the Superior Maxillary Bone, performed by William Williams, Esq. of Dolgelly, and reported by him.—5. On a Fæculent Discharge at the Umbilicus, from Communication with the Diverticulum Ilei; by T. W. King.—6. On the Extirpation of Ovarian Cysts; by C. Aston Key.—7. Case of Extra-Uterine Fœtation; by B.C.B. Rose, of Swaffham, Norfolk. With a description of the parts, by Dr. Oldham.—8. Cases of Peurperal Convulsions, with Remarks; by John C. W. Lever, M.D.—9. Report of Cases of Stricture of the Urethra, Retention, and Extravasation, treated in Guy's Hospital from Oct. 1841 to Oct. 1842.

These we shall take up *seriatim*.

I. OBSERVATIONS ON PNEUMONIA AND ITS CONSEQUENCES. By THOS. ADDISON, M. D.

This Paper is one of too great magnitude and importance to admit of being done justice to here. We shall present a succinct but complete account of it in our next number.

II. OBSERVATIONS ON LITHOTOMY. By BRANSBY B. COOPER, F.R.S.

Mr. Cooper, after some sound preliminary remarks, runs over the symptoms of stone in the bladder, and then passes to the consideration of Lithontriptics, Lithotrity, and Lithotomy.

Of the former, he observes, and we think with justice, notwithstanding what has been said of the Vichy Waters, and so forth—"I appeal to experience as to the result of the experiments which have been made; and believe I may venture to say, that we are not at present possessed of any medicine capable of dissolving, with safety to the patient, any calculus already formed, either in the kidney or bladder." And he adds:—"Nor can much more be said for the efficacy of injections for the cure of stone: they may palliate, but, as yet, we have no evidence of their removing a calculus when once formed; although, like medicines taken internally, they may sometimes relieve the sufferings produced by a stone in the bladder." Such we apprehend to be, paucis verbis, the real state of the case.

Of Lithotrity, his opinion is briefly expressed also. It is applicable to cases of small stone, and a bladder capable of containing from eight to ten ounces of

water for a considerable time. Nor does "a moderately diseased state of kidney," preclude it. Nay, Mr. Cooper thinks that this might be benefitted by the operation—a problematical point, in our opinion.

Mr. Cooper's directions for the performance of Lithotrity are well worthy of perusal. We quote them, although the passage is a long one:—

"A patient requires but little preparation for the operation of lithotrity; the principal fact to be ascertained is, whether the bladder is capable of retaining a sufficient quantity of fluid to keep it in a fit state of detention to allow the lithotrite to act without fear of injuring the coats of the organ. If the bladder be irritable, the operation should not be immediately proposed; but remedies should be administered to alleviate this symptom, and tepid water should be daily injected into the bladder, increasing the quantity and period of its retention until the patient is capable of retaining eight ounces long enough for the operation to be performed, which may then be considered safe. No further preparatory treatment is required than merely to open the bowels freely before proceeding with the operation. The most convenient position for the patient to be placed, is upon the foot of a low bed, with his feet resting upon two chairs, sufficiently separated as to allow the operator to stand conveniently between them. The bladder should be injected so as to contain about six or eight ounces of tepid water. The lithotrite should then be carefully and gently passed into the bladder, invariably with the screw tightly turned home, so as to secure the close adaptation of the claws of the instrument. The lithotrite is not to be passed into the bladder with the same motions of the hand that the sound or catheter is introduced, but it is rather pushed or pressed onwards, the penis being drawn forwards upon the instrument. Directly the bladder is entered, the screw should be turned so as to release the blades from its influence, and they should be separated: if at this time any water makes its escape by the side of the instrument, an assistant should press the urethra against it, and prevent its flow. The operator then presses the convexity of the end of the lithotrite with considerable firmness against the inferior region of the bladder, so as to render that part the most depending: into this cavity the calculus naturally falls, is immediately felt through the instrument, and is easily grasped by closing the blades; when, by the action of the screw, it is to be broken down, and piece after piece to be seized until it is crushed into fragments sufficiently small to pass through the urethra. As to the number of times the stone may be seized, no definite directions can be given, as it must depend upon the temperament of the patient, and the degree of suffering complained of; but the surgeon may bear in mind, that the more he can safely do at the first operation, or sitting, as it is sometimes called, the better. Each time the lithotrite is passed, the approximation of the blades should be secured by the turning of the screw to its fullest extent; a precaution which is not always taken, but is important, as it prevents the possibility of the blades separating during their passage through the urethra, and the consequent liability of injury to the membrane. The bladder should then be well washed out by injecting it with considerable force, and the water allowed to be drawn off through the catheter as rapidly as it can be made to flow; and in this effort a considerable quantity of detritus is sometimes brought away: but this is not invariably the case, for it sometimes happens that but few fragments come away directly after the operation, although the stone may have been effectually crushed. It is not safe to allow the patient to walk or move about after the operation: he should be immediately put to bed, and a large dose of opium administered, to check the liability, which almost invariably occurs, of a rigor, as well as to overcome the irritability of the bladder, excited necessarily by the irritation to which it had been submitted. The prevention of the rigor is a matter of the greatest importance; for if it be not prevented at first, by the opium, there is not only the ill effects of it to overcome, but it seems as if the patient became subject to its recurrence; while, on the contrary, if it be stopped at first the patient seems to be but little

prone to it subsequently. This fact I learned from my friend Sir Benjamin Brodie; and am, from experience, thoroughly convinced of the accuracy of his judgment, on this, as on every other surgical subject. For the first two or three days the patient should be kept in bed, and should pass his water in the recumbent posture, not attempting to force the fragments away with his urine until the irritability of the bladder has ceased; and then he should micturate in the erect posture, or even lean forwards, so as to direct the broken portions of stone towards the urethra. If a fragment becomes lodged in the passage, attempts should not be immediately made for its extrication; but a dose of opium should be given, and the patient remain in bed to await the chance of its passing with the next flow of urine. Should this not happen, but still the urine pass, the surgeon should not yet interfere; but if, on the contrary, the urine cannot escape, the fragment must be removed by mechanical means. For this purpose, various instruments have been invented, forceps of different forms; but the best I have seen, and which I have found upon one or two occasions perfectly efficient, is a French instrument, which is made in the form of a straight staff, with a joint at the extreme end and a screw at the top. This instrument is of small size, as it is intended to pass beyond the foreign body in the urethra; the screw is then turned, which acts upon the little joint at the extremity, which is thereby brought to a right angle with the shaft of the staff; and then, by gently withdrawing it, the fragment is drawn up with it. Sometimes, however, these means may fail; and then it will be required to cut the portion of the calculus out of the urethra. This necessity most frequently occurs fortunately at the orifice of the urethra, which is the narrowest part of the canal, and is a matter of no danger as to results. Not so, however, when the stone becomes compacted low down; for although there may be found very little obstacle to its removal, it may prove afterwards very difficult to heal the opening, in which case a fistulous passage may permanently remain. Before, therefore, the surgeon proceeds to cut out a fragment which is compacted low down, every means should be attempted to facilitate its passage with the urine. Opiates, warm-bath, and tartarized antimony, should be exhibited; and should these remedies fail, attempts should be made to push it back into the bladder, that it may be further broken down by the use of the lithotrite. If this attempt fails, then, and not till then, should it be cut down upon, and removed. If, however, it becomes actually necessary to cut down into the perienæum to remove the calculus, I believe the best way of healing the opening, or rather to facilitate its healing, is to use the catheter whenever the patient requires to pass his water for the first week or ten days, so that no urine may pass through the wound; and this plan I think preferable to leaving an instrument constantly in the bladder, as the urine has a tendency to pass between the urethra and the catheter, and so escape through the wound."

Mr. Cooper next turns to *Lithotomy*. He, of course, enjoins a careful examination of the urine, an albuminous condition of it forbidding the operation for the time. He also directs attention to the liver, a fatty degeneration of that viscus being frequent, and lowering the vital powers most unfavourably for an operation.

Mr. Cooper recommends preparatory measures—blood-letting *and* purging, if the patient be plethoric—setting the patient's mind at ease, and, particularly, acquainting him with the position he will have to take, nay, inducing him to practise it—a purgative over night, an enema in the morning, with, in irritable habits, a gruel injection with laudanum afterwards.

With regard to the operation itself, Mr. Cooper prefers the straight staff of Mr. Key, "but it must be in the hands of those who appreciate its value and understand how to benefit by the advantages it affords." When this is employed, it cannot, when introduced, be brought to a right angle with an horizontal line, as the curved instrument can, but only to the angle of 45°, beyond which it

should not be attempted to be raised, as its point is liable to be drawn out of the bladder.

On the incision in the perineum it is not necessary to dilate. We may observe, however, that, in the second step of the operation, Mr. Cooper opens the membranous part of the urethra, and then, carrying the knife downwards, as in the first incision, divides the whole length of the deep fascia of the perineum, together with the transverse muscles and artery of the perineum, and some fibres of the accelerator urinæ. The majority of surgeons do not, in this incision, open the urethra, deferring doing so until they intend cutting into the bladder. Mr. Cooper recommends the proceeding he adopts, first, because it offers a precise point for commencing the second incision; and secondly, because it secures the complete division of the deep fascia, a portion of which is otherwise liable to be left undivided, requiring, probably, a further division for the removal of the impediment which it may offer to the extraction of the stone.

In a case in which the artery of the bulb was wounded, and gave rise to a very troublesome hæmorrhage, Mr. Travers ingeniously succeeded in arresting it, by placing a hard compress of cork under his recumbent patient, in such a situation that the weight of his body compressed the internal pudic artery between the compress and the spinous process of the ischium. The precise point where the compress should be placed may be ascertained by drawing a line from the upper part of the trochanter major to the articulation of the os coccygis with the sacrum; and at the junction of the inner with the middle third of this line is situated the spinous process of the ischium, and the internal pudic artery passing over it. The propriety of placing the patient, under these circumstances, upon a hard mattress is sufficiently obvious.

When the straight staff is used, a greater difficulty is experienced in opening the membranous part of the urethra, from the greater depth at which it is situated. This Mr. Cooper considers an advantage, from the bulb not being pushed forward, as it is by the curved staff. The artery is thus safer, and the opening into the bladder more direct.

In opening the bladder, Mr. Cooper agrees with the majority of surgeons in deprecating a complete division of the left lobe of the prostate, by which the pelvic fascia is opened, and urinous infiltration rendered too probable. He does not believe that the internal pudic artery is ever, or can be, wounded in the operation for lithotomy, unless it happens to be the subject of some variety in its course which does sometimes occur—and this, he thinks, might be ascertained by the surgeon during the operation, by feeling with his fore-finger directly after he has divided the deep fascia of the perineum, and consequently before he commences the third step of the operation.

Speaking of the extraction of the stone by the forceps, he observes that a very small one may elude their grasp, and be concealed between their blades. When a small calculus is expected, it is advisable, on this account, to employ flat-bladed forceps. Mr. C. thinks that they are generally made too small, or, at any rate, too short, for adults.

He objects to the knees being tied together, as that tends to direct any blood that may flow into the bladder, where it may accumulate and give rise to urgent symptoms. Mr. C. has frequently witnessed severe rigors a few hours after the operation for the stone, and which have been relieved directly a coagulum has been expelled from the bladder by its own muscular efforts.

Where the calculus is too large to be extracted by the lateral operation, he advises its being crushed by an instrument like the lithotrite, only shorter and stronger, so as to break the stone into two or three pieces, and then remove them with the forceps. The operation *à deux temps* he objects to.

Several operations on the same individual are not very uncommon. Mr. C. has operated three times successfully, on a farmer of Bedford. In the secondary operations, the incisions may be, as before, on the left side of the perinæum.

Mr. Cooper concludes by advising a sufficiently liberal diet *after* the operation. The success of surgeons in this country, when compared with those of the Continent, hinges much upon their attention to this.

III. On a Fæculent Discharge at the Umbilicus, from Communication with the Diverticulum Ilei. By T. W. King.

It has long been known that occasionally a fæculent or urinary discharge attends the separation of the funis from the new-born infant's abdomen. This discharge usually declines unless connected with some unusual and serious organic derangement. Various cases of irregular and abrupt termination of the bowels may be met with in imperfect fœtuses; and a point of interest in the subjoined pathological account is, that the appearance also depends on a disturbed process of development.

The umbilical vesicle of the human embryo seems analogous to the yolk-sac of the chick in ovo. Here omphalo-mesenteric blood-vessels communicate between the yolk-sac and mesentery; and there is also a trace of a tube, on the plan of a diverticulum, opening into the intestines.

The umbilical vesicle is probably as essential in the first days of the human fœtus as the yolk-sac throughout incubation. Long after the fœtus in utero has established a new source of nutrition and respiration by the placenta, a cord remains, the seeming vestige of a canal from the fading sac (at the end of the funis between the amnion and chorion) to the parts within the abdomen; there is reason to conclude that the site of this canal is that of the intestinal connexion with the common diverticulum ilei, between ten and twenty inches from the cæcum on the convexity of the ileum.

In the Guy's museum there are thirteen, and in that of St. Thomas's Hospital three specimens of diverticulum ilei. The organization and function of these tubes seem closely to resemble those of the bowels. They are from 3 to 10 inches in length. The termination or cul de sac is generally free, mostly rounded. Mr. King sees no more difficulty in explaining the liberation of the diverticular tube from the umbilicus, in the age of active changes and free development, than in the simple atrophy and division of adventitious adhesive cords which we see daily taking place in the adult.

The following is an outline of the cases related.

Case 1.—*Umbilical Fistula*.—John Cashman, æt. four months. Suffered from discharge from the umbilicus, of a thin yellow-colour, and of a faint odour; this discharge had existed from the time the funis came off, on the eleventh day after birth. The aperture of the umbilicus communicated internally with deep sinus (a probe could be passed to the depth of two inches:) there was at the time no doubt that it communicated with the small intestine.

Chloride of zinc was first used without benefit; an incision of an ovoid shape was then made around the opening at the umbilicus, and the fresh incised parts brought together by means of three pins and straps of plaster: in a few days the wound was healed, and the patient was discharged cured.

Some little time afterwards the final confirmation of the case presented itself. The little subject appeared to be carried off by internal obstruction and inflammation. A diverticulum, about three inches long, was found adhering to the umbilicus; and an adventitious cord appears to have compressed the ileum, just below its connexion with the diverticulum.

Case 2.—A child eight days after birth, presented a fungus occupying the umbilicus, supposed to have been produced by the nurse pulling at the remains of the funis. This fungus was removed, in the course of a few days, by caustic.

The liquid contents of the alimentary canal then commenced oozing through an opening in the umbilicus. An attack of bronchitis supervened; and a portion of intestine, often four inches in length, protruded during the fits of coughing, and its contents might be seen passing through the open extremity. At last, cicatrization was produced; but, about a year afterwards, thoracic disease became manifest, and eventually destroyed the patient.

Upon examining the abdomen, about a foot and a half from the cæcum, a diverticulum nearly five inches long, extended from the convexity of the ileum to the umbilicus, to which the extremity was firmly attached. The umbilicus externally appeared pretty natural, excepting a little central spot of granulation as wide as a pea.

The treatment in these cases should be directed to obviate excoriation, to suppress discharge, to repress undue granulation, or to invigorate the frame, especially if wasted by loss from the bowels. Spontaneous cicatrization concludes the case; although, with neglect, the fistula may remain even to adult life.

IV. On the Pathology of Cells. By Thomas Williams, M.B.

The discovery by Schleiden and Schwann that all animal and vegetable tissues derived their common beginning from *cells* constitutes a most remarkable era in the history of Physiology. Notwithstanding, however, the important office performed by cells in the original formation and subsequent metamorphosis and regeneration of animal and vegetable structures, the author of the present "Report" expresses his surprise that no systematic attempt has hitherto been made towards setting forth the great value and importance of the microscope, as a means for the study and investigation of disease. Pathologists, he says, have been extremely sceptical with respect to the accuracy and fidelity of the microscope, as an instrument of investigation and discovery. Philosophers have always perceived, from Wollaston and Ehrenberg to the least pretending microscopists of the present day, that the endowment and capabilities of the senses, like those of the mind, present palpable individual differences. In examining a morbid structure by the help of a modern achromatic microscope, which enables the observer to resolve the object of study into its *ultimate* and integral *cells* and *filaments*, and *their parent* molecules and capillary system, conducting thus the eye, and therefore the mind, into nearer approach to those more hidden and deeper elements, in the definite characters of which it may read the incipient and secret changes which lead to an accumulation of diseased product, which soon and sensibly proclaims a departure from the healthy state—it becomes at once evident, that this invaluable instrument should in future be considered as the inseparable companion of the morbid anatomist. The difference between a primitive cell and a mass of organised structure, is not simply one of magnitude; for the primitive cell, though not strictly an elementary body, is, in its organisation, infinitely less complex than the mass, and consequently must, under conditions of disease, present changes and phenomena *proportionally* more intelligible than a complex organ. Another point of view in which the dissimilar relations of the primordial cell and the compound organ become peculiarly interesting to the pathologist is, that in animals, as in plants, *all the changes in which organic life essentially consists*, are performed by *cells*. A *cell* is the ultimate limit of organised structure. When the formative blastema assumes the attributes of organisation, a cell is the first visible form under which it presents; it is an atom of organised matter; so that the ultimate cells of organs are the immediate agents of all the *organic processes*: the elaboration of nutrient matter, in all its stages and disintegration, for the purposes of secretion and elimination, are essentially *cell*-phenomena. Hence, it must be obvious that the remarkable advances which these discoveries have effected in physiology, are destined to

produce correspondingly important changes in the character of pathological science, and to widen the limits of those narrow bounds within which the routine morbid anatomist has hitherto circumscribed his inquiries. The conclusion is, that the *same* organic laws preside over the combinations and resolutions of the minutest as of the largest aggregations of living matter—a simple primordial *cell*, as of a voluminous compound organ. So true is it, that the most fruitful materials for the successful extension of pathological science lie hidden in the integral elements of structure, by the ponderous mass which progressive changes may have accumulated. If not the *principia*, cells unquestionably are the *semina morbid*—the machinery of propagation. We may now briefly notice the organic laws to which these cells, in common with larger masses, are subjected. A definite scale of development is assigned to the primary organic cells proper to the various structures of the body. These cells pass through prescribed gradations of growth, the duration of their life-period being equally pre-limited. The typical elements of an organic primary cell are three only: first, an external sac (cell-membrane;) then a smaller vesicle (nucleus,) which contains a smaller (nucleolus.) In applying the above description to the *ovum*: the first is the *vitelline capsule* ("membrana vitelli")—the second the *germinal vesicle* enclosing the third, the *germinal spot*. Primary cells propagate themselves by the reproduction of cells similar to themselves. In its pathological relations this is a very important circumstance; thus, when the malignant tendency has been once established in a part, by the organisation of a *cancerous primary cell*, in virtue of this power inherent in the cell of multiplying its kind, the continuance of the destructive process in the part is certain and inevitable.

Another law with respect to these cells is, that every ultimate vesicle is so far a unity, as that it may be isolated from the surrounding cells, yet depending for its nutrition on the general circulation. Again, analogy leads to the inference that *every cell* is the scene of two descriptions of circulation; one may be styled *diasmotic*,* the other *intrinsic*, and strictly nutrient and vital. The nutrient fluid transudes the septum of the *cell*-membrane, and either moves along its inner surface, or combines with its contents—the vitelline structure—to undergo a preparatory elaboration, before it goes to nourish the germinal vesicle. One of two circumstances may produce disease in those delicate organisms, of which one may affect simply the quality of the nutrient circulating fluid, and the other may be associated with some impediment to its circulation. Under the influence of either cause disease will come on the cell. The labour of primary and secondary assimilation devolve exclusively on these ultimate cellules of organic structures. It was formerly supposed that a disordered state of the capillary circulation, called inflammation, was necessary as a prelude to the occurrence of all morbid organic changes. The microscope, however, has introduced important revolutions into the doctrines entertained regarding the essential characters of this process. All the phenomena of which the process consists may be viewed under two divisions; of which the first includes all the changes *mechanical*, chemical, and vital, which the blood undergoes *before* its escape from the capillary vessel; the second, those organising changes, which the plasma (liquor sanguinis) the material which has transuded the parietes of the capillary vessel as a *consequence* of the antecedent condition of the blood *within* the vessels, more or less rapidly puts on. Whatever be the condition, with respect to the chemical and vital composition of the liquor sanguinis, true it is, that from the moment there exists a want of harmony between the diameter of the capillaries and the size of the blood-molecules, obstructions supervene, and *then* appear the characters of inflammation. The entire tendency of the innovations in modern

---

* That is, *perpulsive*; signifying the transit of a fluid through a membranous partition, whether from, or into, a cavity.—*Rev.*

physiology countenance the view, which requires that the process of organisation, through the interagency of cells, which takes place in all cases in the inflammatory product, should be regarded as essentially one of nutrition.

Cells of the Liver.—The liver should be selected, as the organ affording the best opportunities for prosecuting the interesting subject relating to the *pathology* of cells. The existence of fatty particles within the hepatic cells was determined by Henle and E. Wilson: the discovery of the pathological bearing of this fact is due to Mr. Bowman. He it was who announced the fact, that in one third of the total number of cases of phthisical disorganisation of the lungs, the epithelium cells of the liver become more or less gorged with adipose particles. It is worth mentioning, that no fat globule has yet been found within the *nuclear cell.* It always occupies the interval between the nuclear and outer capsule. With respect to the mechanism of the secerning process, of which these cells are the seat, the situation of the fat seems to sanction the following conclusions:—that the adipose matter is either *secreted*, as a ready-elaborated proximate principle by the cell-membrane; or that the elements of fat, unelaborated, attain in common, and mingled with other principles, the chamber of the *outer cell*, when its elements enter into new combinations: that the *nuclear capsule* is either proof against the entrance of the adipose principles, or that the *nucleus* has not yet attained that degree of development, at which it is endued with the property of secreting fat. If the former be admitted, it must likewise be admitted that the outer cell-capsule possesses the power of *determining the production* of the numerous primitive molecules and the bile-coloured fluid which its chamber contains. During these observations the following positions were arrived at: that the nucleus disappears in the pressure of the increasing fat;—that the primitive molecules, which the hepatic cell normally contains, undergo absorption, according as the adipose particles augment;—that, with the disappearance of the primitive molecules, the *bile-colour* of the cells disappears. During these observations it was ascertained, that in these cells the nucleus could not be viewed as *parentally*, but rather as filially related to the vitelline capsules; that, it was rather the expanding germ of a future generation of cells, than the withered remnant of one passing away; that the nucleus in no way participated in the secerning operation of the developed cell. During the progress of fatty degeneration of the liver, the parenchymal cells, distended by accumulated fat, can no longer sustain their accustomed part in the process of secretion, and they eventually *burst.* Hence, a universal suspension of the secreting agency takes place; so that the last avenue for the elimination of carbon from the blood suffers fatal obstruction, and the lungs and liver becoming then disabled, the whole body is precipitated in the wreck occasioned by the accumulation of carbon in the blood. At first, the undue development of fat in the liver, under the gradual failure of the respiratory agency of the lungs, was obviously a protecting alternative; but subsequently the remedy becomes a poison; and the struggling system, now deprived of the agency of two important organs, is soon overwhelmed. Fat contains 80 per cent. of carbon. It must be obvious, that when these two great channels for removing carbon from the system are blocked up by disease, the injurious influence of the retained carbon must be fatal. No one can question the value of these considerations, with respect to the *effects* on the general system, and the pathology of tuberculous disorganisation of the lungs, to which these changes in the liver must conduct.

That the adipose contents of the hepatic cells are destined to constitute a portion of the secretion of the liver, has been determined by the analysis of bile. In *fever*, the adipose globules almost completely disappear from the cells of the liver. In its relation to organic chemistry, no little importance attaches to this fact. This absorption of fat from the hepatic cells in fever, may be viewed as a circumstance depending on conditions exactly the converse of those obtaining in cases of disorganised lungs. The latter organs being reduced to a state more or

less completely of disease, the liver becomes burdened with vicarious labour. In *fever*, on the contrary, from the exalted condition of the respiratory agency, the rapid circulation and highly oxidised state of the blood, the decarbonising function of the liver is little required. All the stagnant carbon of the body, thus subjected to the direct chemical agency of a large amount of the free oxygen, with which the blood is impregnated, is pressed into rapid chemical combination, and the products are carbonic acid and water.

Want of space prevents us from extending our analysis of this interesting paper.

V. Case of Extirpation of the Superior Maxillary Bone. By William Williams, Esq., of Dolgelly.

The patient was a laborer, aged 24. The disease was of two years' duration. The tumor was on the left cheek, of large size, with the skin on its summit red. The nose was turned to the right side by its pressure, and the left nostril completely obstructed: it had also encroached on the orbit, so as to cause a considerable protrusion of the eye-ball. The palate presented a large ulceration, with everted edges; behind which, close to the last molar tooth, was a soft fluctuating swelling: this was punctured, and bled so profusely, that it was with considerable difficulty the hæmorrhage was arrested. The operation was performed Sept. 16, 1841, by Mr. Williams, assisted by his brother, Mr. Rowland Williams, and by Mr. Robert Jones, of Caernarvon.

"The patient was placed on a chair, his head supported and kept steady. An incision was made from the inner angle of the eye straight downwards to the mouth, cutting through the upper lip about midway between the centre and the commissure. A second incision was then commenced from the centre of the zygoma, and carried down to the angle of the mouth, clearing the parotid duct, the integrity of which was preserved: the facial artery bled profusely, and was tied. The flap was now turned upwards, and dissected away from the tumor and the maxillary bone, until the lower margin of the orbit was exposed; after dividing the infra-orbiter artery and nerve, which produced such acute pain that he fainted, and the operation was suspended, until he rallied. Some difficulty was experienced in clearing the edge of the orbit, and in passing the handle of the scalpel between the floor and the eye-ball, as the former had been raised and rendered convex by the pressure of the tumor from below. The buccinator, the masseter, and the temporal fascia were then separated from the superior maxillary and malar bones; while the cartilages of the nose were also detached on the inner side. It now only remained to cut through the connections of the superior maxillary bone; and this was effected with a pair of powerful-bladed forceps. The palatine plate was first divided close to the septum; the zygoma was then cut through; and afterwards the orbiter plate of the malar bone, into the spheno-maxillary fissure. One blade of the forceps was then introduced into the nose, and the other carried along the inner wall of the orbit, by which a division was effected through the nasal, lachrymal, and ethmoid bones, until it reached the spheno-maxillary fissure. The tumor was then firmly grasped by a pair of forceps, and drawn downwards and forwards: it became loosened from its remaining attachments; and after dividing some fibres, which I conceived belonged to the maxillary vessels and nerves in the spheno-maxillary fossa, the whole mass was brought away. Not more than a pint of blood was lost during the operation, which, together with the dressing, lasted nearly an hour. The parts were brought together with platinum-wire sutures; the cheek was supported internally by dossils of lint, and a bread-and-water poultice applied externally."

In a few weeks the man returned to his work. In July, 184[illegible] he continued in perfect health. The vision of the left eye has improved, [illegible] has not been

perfectly restored. Muscular motion and sensation are perfect on the left side of the face. The tumor would rather seem to have been fibro-cartilaginous and bony.

VI. On the Extirpation of Ovarian Cysts. By C. Aston Key.

Mr. Key, although it was long before he could bring himself to regard the extirpation of an ovarian cyst as anything more than a successful accident, now believes that it is an operation simple in its performance, unattended by more than the usual risk of surgical operations, and called for by the hitherto intractable nature of ovarian disease.

Mr. Key argues in favour of its extirpation, and draws a rather forced comparison between encysted dropsy and stone in the bladder. The question turns after all upon this:—what are the dangers and chances of success from the operation?—and they can be determined only by facts. Mr. Key observes:—

"Entertaining this feeling in favor of the operation, I found, on inquiry, a strong body of experience in the cases that had occurred in the practice of Mr. West, Dr. Lizars, Dr. Clay, Mr. Walne, and Mr. Bird, that sufficiently attested the propriety of the operation; and the question lay between the choice of the major or the minor incision.

"At the first view, the latter appears to be the safer and easier operation, requiring a smaller excision of the parietes of the abdomen; and exposing, in a much less degree, the viscera to the existing causes of inflammation. These apparent advantages, however, are more than counterbalanced by the difficulty of manipulation which the operator experiences in getting a large collapsed mass through a small parietal incision, and in reaching the peduncle of the cyst so as to secure it by ligature. The larger incision does not probably expose the patient to a greater chance of inflammation than a smaller one; and it has the incalculable advantage of giving free access to the tumor, and facilitating its extraction from the abdominal cavity without violence. I look upon the absence of all undue forcible manipulation as the main recommendation which this operation possesses."

A case presenting itself to Mr. Key, he determined, with the consent of the patient, to operate.

*Case.** E. D., aged 19, a fine looking, healthy girl. The disease had commenced fifteen months previously. On admission, a large tumor, presenting no prominences, occupied the entire cavity of the abdomen. Slight fluctuation felt on the *right side.* On the *left side*, in the lumbar region, a hard mass can be distinctly felt, apparently free from adhesions: it can be traced upwards nearly to the cartilages of the last ribs, and downwards into the pelvis, and seems to be continued into the fluctuating mass on the right side. Position has no effect on its form, nor on the comfort of the patient; nor does pressure produce the smallest uneasiness. The veins are not turgid. The abdomen around the umbilicus measured 49 inches.

The patient was of a nervous and highly excitable temperament. The nature of the case, and the risks of operation, were explained to the patient and her friends—their assent to its performance was obtained—a proper room was provided, and the girl removed to it—and at 3 p. m., on the 1st of August, the operation was performed in the following way, by Mr. Key, the temperature of the chamber being previously heated to 70° Fahr.

"Mr. K. commenced the operation by making an incision, about four inches

---

* We trust the *cases* in these Reports will be related a little less in detail. Their prolixity out-Herods Herod, and, instead of instructing, fatigues.

long, below the umbilicus, in the median line; and, after carefully dividing the several layers, exposed the peritoneum. A small opening was made into this, and enlarged upon a director; several ounces of dirty-coloured ascitic fluid escaped. Mr. Key then passed his finger through the wound, on either side of the tumor, and found it perfectly free. An incision was now made from near the ensiform cartilage to the upper extremity of the first incision; the integuments and superficial fascia were cut through by this sweep of the knife, and the peritoneal cavity freely laid open to the same extent by a broad probe-pointed bistoury, carried from below upwards upon the finger; the lower extremity of the first incision was also enlarged by means of the bistoury. The tumor was thus perfectly exposed, and presented no adhesions whatever; there was little or no bleeding from the superficial vessels; the abdominal parietes were thicker than might have been expected. The edges of the wound were kept in close contact with the surface of the tumor, which Mr. Key allowed to escape gradually, assisting its protrusion by depressing the sides of the parietes, which was requisite on account of the great size of the cyst in its antero-posterior diameter. There was a cord-like peduncle at the right side of the lower part of the tumor, around which a single ligature was placed and divided. The tumor, as it issued from the abdomen was received by Dr. Lever, and gently raised; while the peritoneal cavity was immediately closed behind it, by approximating the edges of the incision. Much ascitic fluid escaped, which required carefully sponging up. Mr. Key now passed a strong needle, fixed to a movable handle, and armed with a double ligature of strong silk, through the centre of the peduncle. The lower ligature was tied pretty easily; but the upper one required a great deal of force, owing to the broad expansion of the ligament. The peduncle was now divided between the ligature and the tumor, and the diseased mass at once lifted away; there was not the least bleeding. The three ligatures were placed at the lower extremity of the incision, and the edges of the parietes brought together, and retained in juxtaposition by means of about twelve interrupted sutures. The operation did not last long, and the patient bore it extremely well. Long strips of adhesive plaister were placed at the interruptions of the sutures, and served to keep the edges of the wound in close contact; a broad eight-tailed bandage, which had been laid ready under the loins and back of the patient before the operation, was now uniformly applied, and the girl placed in bed."

She died at 8, A. M., of the 5th of August, having had more or less rapidity of pulse, disposition to vomiting, slight shivering, and, latterly, low delirium.

There were evidences, on dissection, of low inflammation of the peritoneum, especially about the pelvic cavity.

VII. CASES OF PUERPERAL CONVULSIONS. WITH REMARKS. By JOHN C. W. LEVER.

Mr. Lever is very favorably known to the profession by his zeal in the prosecution of obstetrical pursuits, and many valuable contributions to their literature. In the paper before us, he details the particulars of fourteen cases of puerperal convulsions. These have occurred between the years 1834 and 1843, out of seven thousand four hundred and four women attended by the pupils attached to the Lying-in-Charity of Guy's Hospital. The main feature which has struck him has been the coincidence of an albuminous condition of the urine, in nine out of ten cases in which that secretion was examined. The following heads of the cases will give an insight into their general characters, and their results; more seeming unnecessary, as the symptoms and treatment present nothing new nor extraordinary.

Case 1.—Fifth Confinement—Anæmic Convulsion from Loss of Blood—Mother recovered—Child born alive.

Case 2.—Primipara—Unmarried—Mother recovered—Child born alive.

Case 3.—Primipara—Anæmic Convulsions—Child born alive—Mother recovered.

Case 4.—Convulsions before delivery—9th Confinement—Mother recovered—Child born alive.

Case 5.—Primipara—Version—Urine highly albuminous—Mother recovered—Child still-born.

Case 6.—Anæmic Convulsions—Married—4th Confinement—Partial Placental Presentation—Mother recovered—Child still-born.

Case 7.—Primipara—Unmarried—Child expelled by the natural efforts—Urine coagulable—Mother recovered—Child born alive.

Case 8.—Primipara; delivered by the Forceps—Urine albuminous—Child born alive—Mother recovered.

Case 9.—Second Confinement—Convulsions after delivery—Urine Albuminous—Mother recovered—Child born alive.

Case 10.—Ninth Pregnancy—Child still-born—Mother died—Inflammation of the Membranes of the Brain.

Case 11.—Primipara Convulsions—Delivered by Forceps—Emphysema—Death—Child alive—Urine albuminous.

Case 12.—Unmarried—Primipara—Convulsions supervening after delivery—Child living—Mother recovered—Urine albuminous.

Case 13.—Primipara—Convulsions—Twins—Forceps—Turning—Urine albuminous—Mother recovered—Children alive.

Case 14.—Second Confinement—Forceps—Mother recovered—Child born dead.

From the consideration of these and of other recorded cases, Dr. Lever deduces several, not unimportant, statistical conclusions.

Ratio of Mortality. (1, *to mother.*) Out of fourteen cases related here, two only were fatal. The mortality has been ranked much higher. Dr. Lever collates 166 reported cases. In these, 44 women died, or 26·5 per cent. If the fourteen cases recorded in this paper be omitted, the number of cases will be 152, and the number of deaths 42, or 27·6 per cent.; while the cases attended at the lying-in-Charity of Guy's Hospital have proved fatal only in the proportion of one in seven, or 14·2 per cent.

(2. *To Children.*) The fourteen women gave birth to fifteen children; eleven of whom were born alive, and four still-born. Of the four still-born, two were delivered by the operation of turning; one by the employment of the forceps; and the other was a case of partial presentation of the placenta, in which the child descended with the feet forwards.

Cases of Labour and Method of Delivery.—In seven cases the children were born by the natural efforts; in three, the forceps were employed; in two, the operation of turning was resorted to; in one case there were twins, the first of whom was delivered by the forceps, the second by the operation of version; and in the last there was a partial presentation of the placenta.

Nine of the women were married, and five unmarried. Of the fourteen women eight were primiparæ, and six had been previously confined.

It appears that primiparæ are most obnoxious to convulsions.

In two of the cases, convulsions supervened before labour was established; in ten, they occurred during the progress of the labour; and in two, they did not exhibit themselves until after the birth of the child and the expulsion of the secundines.

Condition of the Urine.—Dr. Lever would seem to be the first who has drawn attention to the important fact that, in puerperal convulsions the urine is prone to be albuminous. But *in no cases of pregnancy has he discovered albuminous urine, save in those in which there have been convulsions, or in which symptoms precursory of puerperal fits have presented themselves.* The combination of

œdema of the face and extremities with convulsions has been remarked by several obstetrical writers. Dr. Lever adds :—

"From what I have seen in public and private practice, I am led to the conclusion that cases of convulsions complicated with an albuminous condition of the urine are divisible into two forms; in the one, the urine is *albuminous during pregnancy;* and there are external evidences, as shown in the œdema of the face, eyelids, hands, &c. In such cases, the convulsions will be more violent, and will last for a longer time after delivery. The urine also retains its albuminous properties for a longer period than in the second form, or that in which the urine becomes *albuminous during the labour.* In this variety, the urine contains less albumen; the fits are less violent; seldom re-appear after delivery has been completed; and if they do, it is in a milder form, unless complicated with some lesion of the brain. The urine, in this form, very speedily loses all traces of albumen after labour is completed. Mr. Robinson, in his Monograph, has satisfactorily proved, that causes which induce congestion of the kidney by preventing or obstructing the return of blood through its veins, as abdominal tumors, &c., will produce renal congestion and albuminous urine: and I am of opinion, that the gravid condition of the uterus, by its pressure, prevents the return of the blood through the emulgent veins; and hence is the cause of the renal congestion, and the consequent albuminous condition of the urine. This opinion is supported by the facts I have already adverted to; viz. that the urine was found to be albumineus only in those women who were affected by, or who had the promonitory symptoms of convulsions. The pressure of the gravid uterus is by no means uniform, as stated by some writers: this may be remarked in the difference in size and figure that females present in their several pregnancies. In some the uterus is distended more at its posterior and lateral parts than at its anterior, and *vice versa*; and yet, in both, the contents of the uterus may be equally great.

"In these cases, the congestion will take place and the urine become albuminous towards the close of pregnancy: but this untoward pressure may not be excited until the onset of labour; and as this progresses, the congestion may be increased, and consequently the albuminous condition of the urine be caused. Thus, in my opinion, we have the same cause producing this condition of the urine both during pregnancy and parturition. The great similitude that exists in the appearances presented by females attacked with eclampsia, and those observed in persons affected with albuminaria, must have been oftentimes noticed by those who had attentively regarded both."

The blood was analyzed in one case, without detecting urea.

Treatment.—The cases are divisible into two kinds—anæmic and sthenic. The objects in the latter are to cut short the paroxysm, remove the coma, and guard against another fit—objects to be attained by relieving the vascular excitement and congestion, and putting an end to the congestion.

Active depletion—tartar emetic, to nausea, sometimes combined with a small quantity of opium to prevent irritation of the intestinal mucous membrane—purgatives, and where deglutition is imperfect or lost, calomel in butter on the tongue is recommended—mercury, regard being had to the albuminous urine, with caution. delivery, as soon as is consistent with the state of the patient herself and the condition of the parts through which the child has to pass—such are the remedies advised by Dr. Lever. He adds :—

"And thus, while, on the one hand, I deprecate artificial dilatation of the os uteri (which may induce a convulsion) while I am no advocate for rupturing the membranes, and the induction of premature labour—while I declare myself altogether opposed to incisions in the vaginal portion of the os uteri, as recommended by Velpeau—I do most strongly recommend that delivery be resorted to so soon as the state of the parts will permit its accomplishment.

"If the membranes be unbroken—if the os uteri be soft and dilatable—if the

external parts be lax and moist—then version may be readily performed; but unless there are circumstances of great moment, calling for the immediate delivery of the woman, I would rather wait until the head of the child can be grasped by the forceps or vectis, and the delivery be, by their aid, accomplished."

ST. GEORGE'S HOSPITAL.

REPORT OF SOME CASES OCCURRING IN THE PRACTICE OF MR. HENRY JAMES JOHNSON, ASSISTANT-SURGEON TO THE HOSPITAL.

I. ULCERS OF THE LEG.

In the Number, before the last, of this Journal, there appeared a brief Report on the Management of Ulcers of the Leg. The object of it was to recommend the application to the sores of slightly stimulating lotions, after the manner of water-dressing, in lieu of that of ointments. Some cases were detailed with the view of showing the good effects of the plan, which has since been acted on with satisfactory results. I would now take the liberty of offering an additional remark or two.

When the veins are varicose, as they commonly are, no applications can be expected to succeed, without the assistance of some description of bandage. The latter, however, is useful and necessary, when no enlargement of the veins exists, the uniform temperature and support that it ensures, contributing to the healthy actions of the sore. But an ordinary roller is not found to answer so well as strapping, which makes more equable pressure, is less apt to be deranged, and needs less frequent renewal.

The usual mode of strapping a limb, where one strip of plaister overlies the other, in an uninterrupted series, is incompatible with the proper application of liquid dressings. Under such circumstances, *they* are either suffered to remain too long unchanged—or such trouble is incurred with the strips of plaister, as to induce neglect, and render the whole plan nugatory. Finding this to be the case, we have latterly pursued the following method :—

Strips of Soap Plaister are applied, in the usual way, to the limb, up to the level of the sore. Above this, strips are applied also, and oblique, or cross strips connect the two, the ulcer, with a little of the skin around, being left uncovered by the plaister. If several sores exist, the strapping is modified accordingly—when they are confluent, or contiguous, the aggregate being left exposed—when separate, the strips being carefully carried between them. In this manner the limb gets adequate support, while the ulcers are open to as frequent a renewal of the liquid dressing as is necessary. Our success has been such as to induce me to recommend this mode of proceeding very strongly.

A not unfrequent combination is that of acute, or chronic, eczema, with varicose veins and ulcers of the leg. We see this so often as to render it probable that the varicose veins are, at least, a predisposing cause of the Eczema. The case is troublesome, especially when the eruption is chronic. The irritability of the skin forbids the application of adhesive, or of soap strapping, while the state of the veins demands compression and support. What I have found to answer best, is to apply strips of calico, on which has been spread the compound chalk-ointment, or that of zinc and lead, after the fashion of soap strapping, leaving the sores free for the liquid dressing. But attention is requisite on the patient's part, for the ointment should be renewed once, at all events, in the course of the twenty-four hours, and the greatest cleanliness should be observed.

II. ECZEMA.

This may be said to be our staple Eruption. We see it at all ages, but more

particularly in the young and old—in all parts of the body, but most in the head and on the lower limbs—and with every shade of intensity, but more frequently subacute and chronic than acute. If I may trust my own experience, in private practice, the same thing obtains with the better classes of society, and Eczema is the eruption most rife in all.

The descriptions of the complaint contained in the works of Rayer, Cazenave, or Wilson, are too popular and too complete to require or admit of many additions. The ensuing remarks are no more than a few hints, drawn from my own observation.

In the first place, I would observe, that, either the eruptions of the scalp in children have greatly altered, of late years, or their nature was misunderstood. Hospitals were formerly crowded with specimens of intractable scalp disease, for which the severest remedies were employed in vain. Now we see little of the sort. In the course of nearly a twelvemonth, I have had but three cases of Favus, (one of those was dubious,) and all were cured in a few weeks. But Eczema, and Eczema Impetiginodes of the scalp, have been of daily occurrence, and I have little doubt that, had irritating applications been resorted to, we should not long have been without inveterate cases.

In the next place, it appears to me that Eczema is one of those diseases, which may be adduced in favour of a rational Humoral Pathology. Whether we look at the circumstances of its occurrence, or the effects of treatment on it, we must equally be struck with the evidence it offers, of a vicious condition of the blood. We find it in the cachectic child, fed on insufficient and improper nutriment, and in the luxurious or indolent members of the upper classes, accustomed to too high a scale of diet. The remedies that control it are such as would modify the nature of fluids—evacuants of every kind, purgative, diuretic, sudorific.

I would not be understood to deny, or underrate, the influence of local causes. We find a marked tendency to it on the hands, especially in those whose occupations expose those parts of the body to changes of temperature or sources of irritation. It is very common in bakers. I have already alluded to its frequency upon the legs, in connexion with a varicose state of the veins, the imperfection of the cutaneous circulation appearing, in this instance, to dispose to it. On the scalp, it is so rife in the children of the poor, as to make it not unlikely that want of cleanliness operates materially in its production.

It will be found in many instances, although there are numerous exceptions to the rule, that the subjects of Eczema, especially adults, have a naturally dry state of skin. This probably acts in two ways. The deficiency of the unctuous secretion exposes the integument to suffer more from cold or any irritating agents, while the faulty transpiration does not rid the blood of the lactic or acetic acid, and the other principles which the skin is intended to excrete. It is right, however, to observe, that a dry skin is more prone to Psoriasis than Eczema.

At another opportunity, I shall take the liberty of reverting to this subject, and shall content myself at present with a few observations on the Treatment.

I would say that, on the whole, there are few complaints, of the same severity, more controllable than Eczema. In the majority of instances, it is immediately relieved, and it is not slow of being cured. This applies to cases of moderate duration, and which have not been aggravated by improper management. When the disease has existed long—has been irritated by stimulating applications—or attends on a varicose state of the veins, it will, probably, be tedious, and *may* be irremediable.

The two great objects in the treatment of Eczema, are to restore the healthy state of the blood and the secretions, and to calm local excitement. Evacuants and sedative applications are the means for fulfilling these intentions.

The blue-pill with ipecacuan, at night, followed by morning doses of senna and sulphate of magnesia—or the combination of the sulphate and carbonate of magnesia with colchicum and gentian—full doses of the liquor potassæ in toast-

water, or in barley-water—regular warm baths—ensure free discharges from the bowels, the kidneys, and the skin. If the patient be strong, we must not hesitate to carry the purging and the other evacuations to a decidedly lowering extent. In acute Eczema, and a full habit, we may commence with venesection. But purging, active purging, seems to be the key to successful practice.

The part should be bathed twice or thrice daily with thin, warm gruel or bran tea, and an ointment composed of equal parts of the Unguentum Zinci and Ceratum Plumbi, should be kept constantly applied; the combination of chalk and lead answers, but not so well as the preceding.

When the reduction of the patient has been carried far enough, and the disease is subsiding, the purgation should be moderated, and sarsaparilla may be given with the liquor potassæ. This serves as a mild tonic, and accelerates the cure.

As a general rule, the patient should refrain from all fermented liquors, take little animal food, and avoid all sweets and acids.

The gist of the treatment, then, consists in this—to reduce the patient to a certain point, by purging, alkalies, and diuretics; and, when the vascular excitement of the part is subdued, to give sarsaparilla, or some mild tonic, along with liquor potassæ, maintaining the action of the skin by baths, and that of the bowels by moderate aperients. The part itself is tranquillized, throughout, by warm ablutions, and by the sedative influence of lead, in combination with chalk or zinc.

Of course, the more acute the Eczema, and the more robust the patient, the more active would be the depletory measures. But when the cachectic are the subjects of the complaint, we must be more chary of purgation, and be cautious not to lower the system too much. In cases of this kind, in adults, a mixture, containing the sulphate and carbonate of magnesia, with infusion of hop or gentian, answers the purpose very well. In some instances, I have seen good effects from sulphur in connexion with nitre and soda,* and it seems to suit children especially. The hyd. c. cretâ, with rhubarb at night, and castor-oil, or manna, in the morning, are also adapted, as aperients, for this class of patients. It is unnecessary, however, to particularize such modifications of remedies as will suggest themselves to every experienced person.

I am inclined to think, that whatever benefit the liquor potassæ may exert as a pure alkali, (and, as such, it must influence the constitution of the fluids,) no trivial part of its curative action is that which it effects through the kidney. I fancy that in some, at least, of the cases in which I have seen this medicine of most service, there has been a marked diuresis. That it is a lowering agent is certain, the patients being usually more or less blanched, and attenuated by it, when taken in full doses, or for any time. In accordance with this double view of its operation, I prescribe it in the early stage of the treatment, in a large quantity of simple diluent, such as barley or toast-water. At a later period, sarsaparilla, or some bitter infusion, is combined with it, to counteract undue depression of the system. Well directed, it is in this, and in many disorders, a drug of extreme value.

In conclusion, I would caution medical men, not to be over-anxious to cure Eczema, in elderly persons who have had it long. That is not to be done with safety. The system, in them, is accustomed to the local determination and congestion, and if such be barred from one quarter, it will probably seek another. The head is the part that will suffer. Of this I have witnessed some striking instances.

8, *Suffolk Place, Pall Mall.*

---

* This remedy is, I believe, a favourite one with Mr. Cæsar Hawkins. The formula is—Sulphuris loti ʒj, Potassæ nitratis gr. v, Sodæ bicarb. gr. vj; bis vel ter quotidie.

Spirit of the British and American Periodicals, &c.

SURGERY.

REMOVAL OF THE UTERUS BY THE LARGE ABDOMINAL SECTION.

WE would not willingly be accused of repressing attempts to enlarge the domain of successful operative surgery. But it is well to check the passion which is prone to prevail epidemically for great and hazardous operations. The removal of diseased ovaria is one of this description. Were we to trust to some recent Reports, this would seem to be as easy as amputation of a finger and rather more successful. But, if the proceeding is resorted to as freely as it seems likely to be, we venture to predict that a liberal discount of disasters must be deducted from the sum-total of success. The following case is in point.

Case.—J. B. æt. 46, unmarried, under Mr. Heath's care, in the Manchester Union Hospital.

For four years she had suffered from periodical discharges of blood per vaginam. Twelve months ago, she perceived a tumor in the left hypochondriac region, about the size of a large orange, which rapidly increased in size.

The abdomen resembled that of a woman seven months gone in pregnancy—tumor extending, in the median line, from the pelvis to a little above the umbilicus—firm—and movable. Os tincæ situated somewhat forward and closed, fissure transverse, cervix pyriform. Some motion transmitted from tumor when grasped to cervix.

It was the unanimous opinion of the consultants that the tumor was ovarian, and fairly adapted for extirpation by the large abdominal section. After preparatory treatment, that section was made, and then—

"The tumor now came into view, and was recognized as the uterus distended by solid matter; and this was rendered more certain by the introduction of a trocar. The size and solidity, with the rapid growth of the tumor, and the probable effects which would be produced by the next periodical discharge of blood, determined me at once to effect its removal *en masse*. Having passed my hand over the fundus of the uterus, and behind it, I raised it from the abdominal cavity, when it was sustained by Mr. Goodlad, while two double ligatures were passed, by means of a sharp-pointed aneurism-needle, through the cervix uteri, immediately below the circumference of the tumor. Each ligature was then firmly tied, so as to include one half of the neck of the womb and broad ligaments. The parts were then excised and removed. No bleeding ensued from the cut surface; indeed, throughout the operation, not more than three ounces of blood were lost; and after the first division of the skin, few complaints of suffering were made by the patient herself.

"The intestines, which had escaped, were replaced *in situ*, and the abdominal parietes brought together by the interrupted suture at seven points."

The patient lived 17 hours, sinking rather than presenting acute symptoms.

Dissection.—There was partial adhesion of the wound. Spots of increased vascularity, and distention of the bowels. Fourteen ounces of blood in the cavity of the abdomen, but the source of the hæmorrhage not obvious—the ligatures still lightly constricting the remains of the uterus, which comprised about two inches of it.

The uterus, with the tumor, weighed six pounds—it was smooth and globular—the walls of the orange three-quarters of an inch in thickness—the tumor itself fibrous, and growing from the muscular structure immediately beneath the mucous membrane at the fundus.

Now, without going into the merits of the case, it is enough for our purpose to observe, that the medical officers of a public charity agree unanimously to remove as ovarian tumor, an uterus with a fibrous growth in it—evidence enough of the uncertainty which too often attends the diagnosis of these cases.—*Medical Gazette*, Dec. 8, 1843.

REMOVAL OF A DROPSICAL OVARIUM, ENTIRE, BY THE LARGE ABDOMINAL SECTION. BY D. H. WALNE, SURGEON.

On the 27th June, 1843, a Miss A. K. from the country, in the 20th year of her age, consulted Mr. Walne for a dropsical disease of one of the ovaries. Mr. W. found the abdomen as prominent as at the full period of pregnancy, with greater fulness towards the loins. The tumefaction was circumscribed—and distinctly fluctuating; health in all respects good—no sign of general dropsy—uterus, and its functions, perfectly natural—had never been tapped—general figure slender—some emaciation—still she measured 40 inches in circumference. Mr. W. proposed excision of the diseased ovary, as the only alternative. After considerable delay it was finally arranged that the operation should take place on the 12th of Sept. The usual preparatory measures were duly attended to.

Sept. 12. At 3 o'clock P. M. a copious enema of warm water ensured the clearance of the bowels. Drs. Blundell and H. Davies, Messrs. Vincent, Beale, Burrows, Camplin, Hitchman and Law, having assembled, and all the necessary preparations being complete, about a quarter before five o'clock, Miss K. seated herself firmly at the end of a couch. The pillows and bandage being duly adjusted, Mr. Beale took his post on the right, Mr. Law on the left of the patient, the former to manage the integuments, the latter the tumor. The operator sat obliquely facing the end of the couch. Mr. Walne made the exploratory small opening of an inch and a half in the linea alba and below the umbilicus—the abdominal cavity was soon entered, and the state of the cyst was ascertained by the finger. He then divided the integuments from above downwards in the median line, slightly deviating to the left at the umbilicus, and having reached the preliminary section at its upper end, he then prolonged the division downwards to the requisite extent—the incision was 14 inches in length. Then, with the curved probe-pointed bistoury, he divided the peritoneum from within to a like extent. An enormous cyst gradually advanced through the wound. The broad uterine ligament of the left side constituted its pedicle, through which the operator thrust from behind a needle armed with strong silk twist. The two halves of the pedicle were separately and tightly tied, and then it was divided between the ligatures and the tumor—the latter, weighing 28 lbs., being removed without impediment from adhesion. No bleeding ensued from the division of the pedicle, which was firmly tied—13 interrupted sutures were applied—then pads of lint on each side of, but a little away from, the wound, and over these, strips of plaister, all being secured by a bandage. The case went on rapidly progressing towards perfect health with scarcely one single unfavourable symptom. On the 29th (17 days after the operation) the patient walked across the room, leaning on the nurse's arm, and the next day did so repeatedly without support. *Dimensions of tumor.*—When lying, its circumference measured horizontally 3 ft., 8½ inches vertically, lengthwise 3 ft. 2 in. Vertically across 2 ft. 10½ inches—28 lbs. imperial weight.

CASE OF OVARIAN TUMORS—BOTH REMOVED AT THE SAME OPERATION. BY JOHN L. ATLEE, M.D., Lancaster.

Early in the month of June, 1843, a lady under 30 years of age, who had never

been married, became the subject of this operation. She had suffered from ascites for the three last years, for which she had been tapped four times, the ovarian tumors having remained undetected till after the third tapping. Dr. A., convinced that these large ovaria were the cause of the dropsy, proposed to remove them—the patient consented.

An incision was made into the abdominal cavity, about nine inches in length, in the course of the linea alba, and commencing at the pubes. The left ovarian tumor was found attached merely by the broad ligament, and floated free in the abdomen; while the tumor on the right side, adhering about two-thirds of its extent to the brim of the pelvis and the omentum, required some careful dissection in its removal. They were both removed without much hæmorrhage; and this large wound, which was brought together by the interrupted suture, is now, seven weeks after the operation, completely united, with the exception of the lower end, where the ligatures upon the ligament still remain. The patient recovered perfectly without an unfavorable symptom.—*New-York Journal f Medicine*, Sept. 1843.

PHLEBITIS, WITH REMARKS ON ITS PATHOLOGY AND TREATMENT. By N. CHAPMAN, M.D., Professor of Medicine in the University of Pennsylvania.

When phlebitis occurs in an external or superficial vessel, there is pain, much increased on pressure, with swelling, stiffness, and a streak of redness along its course—the affection almost always proceeding towards the heart—there is also constitutional disturbance—the pain becomes more poignant, and the tumefaction enormous—if it occur in a limb, the latter becomes of more than double its natural size, skin tight, smooth, even glossy, and rather white than red, or purplish. The fever now becomes typhoid, marked by great prostration, pulse sometimes intermittent, or otherwise very irregular, nausea and vomitings, præcordial uneasiness, hurried respiration, deep sighing and dejection of spirits, foul coated tongue, &c. Chills or rigors, or rheumatic-like aches in the joints, or wandering about the cavities of the body. According to Dr. Chapman, spontaneous phlebitis very rarely occurs—he never saw a single case of it. It generally proceeds from some mechanical injury done to the vein by venæsection, amputation, the extirpation of tumors, &c. The tying of varicose veins has sometimes occasioned it. Compression from adjacent tumors also induces it—much is also imputed to the introduction of a virus into the circulation by inoculation or otherwise. As a common cause is also held the absorption of pus or acrid fluid from foul ulcers, or the secretions of various surfaces. The Doctor states that, phlebitis is owing almost exclusively to a wound of the vessel, and that it is perhaps never directly occasioned by a virus. There are times, and individuals, at all times, when the slightest incision or puncture, or even a scratch, will lead to the most disastrous results of this nature from the cleanest instruments. Every one knows that, at particular seasons, phlebitis is very apt to follow venæsection. The instances of tumefaction from the insertion of a virus he considers to be affections of the lymphatics, utterly denying to veins any absorbing power whatever (!!) The prognosis in phlebitis is in general very unfavorable. According to Hunter, in dissections of cases which have died from phlebitis, suppuration and ulceration have been found. Beginning usually in the lining tissue, the inflammation may pervade the whole of the vascular parietes. We also have extravasation of lymph, either on the surfaces, or, as the author says, "intertissual." Collections of pus and of lymph are sometimes detected in the calibre of the vessel to such an amount as to obstruct the circulation. Adhesions of the sides of the vessel have sometimes produced a total obliteration. For the extensive constitutional disturbance, almost always evincing a

tendency to typhoid debility and vitiation, which sometimes occurs in phlebitis, the Dr. is totally unable to account satisfactorily. If it could be proved, he says, that the local inflammation was widely diffused through the veins, so as to embrace a large portion of them, then there might be some means of accounting for the enormous mischief produced. Such, however, is not the case, the inflammation being for the most part restricted to a few inches from the wound. The phenomenon he conceives is only to be accounted for on the supposition of the "sympathies of the rest of the veins with the affected one." What a convenient sort of thing this thing of sympathy has proved in the hands of the nonplussed medical philosopher! If we recollect rightly, Dr. Chapman it is, who, in his accounting for the modus operandi of medicinal substances,* invokes the aid and the exclusive aid of his favorite *sympathy*. The comparatively gross idea of medicines producing their sanatory effects by their being absorbed into the system he utterly repudiates. The mode of treating phlebitis proposed by Dr. Chapman, not differing in any particular from that usually employed, we shall here close our notice of this article.—*Abstracted from the American Journal of the Medical Sciences*, July, 1843.

A CASE OF SPINA BIFIDA SUCCESSFULLY TREATED BY REPEATED PUNCTURES; WITH PRACTICAL REMARKS. By ALEXANDER H. STEVENS, M.D.

Oct. 17, 1837. An infant, eight months old, was operated on by Dr. Stevens this morning for spina bifida. The tumor was seated over the upper part of sacrum, about 3½ inches broad from side to side, the same nearly in a vertical direction, and rising about two inches above the surrounding surface. The covering of the tumor was not healthy skin, but a peculiar thin membrane of a whitish colour, traversed by numerous vessels, like varicose capillary veins. The whole swelling was somewhat pendulous, narrower at its base. It had been once punctured with a needle, and the wound is now covered with a scab. In the first operation it was punctured with an iris knife, and about four ounces of clear serum, with a few drops of blood, were discharged. The child did not appear to suffer—a slight sinking was produced at the anterior fontanelle. On the 20th and 21st it was again punctured, and about five ounces of serum were discharged. The tumor now appeared shrivelled. Oct. 30th. The fluid continued to ooze for nearly 24 hours after the last punctures. Recently the sac of the tumor has become inflamed; and within two days the child has kept her left leg drawn up, and cried when disturbed. Tumor is kept wet with a spirit lotion—anterior fontanelle much depressed. No further puncturing. On the following Summer the sac of the water had disappeared, and all that remained was a small bunch of indurated integuments.

Remarks.—The mode of obviating syncope and spasms in this operation is by drawing off the water slowly, leaving some in the sac, keeping patient in the horizontal position, and making pressure on tumor and head.—*New-York Journal of Medicine, Sept.* 1843.

ON ELECTRO-PUNCTURE IN HYDROCELE. By F. C. STEWART, M.D.

The idea of this mode of treatment originated with Dr. Pecchioli, an Italian

* See his work on Therapeutics.

surgeon, attached to the hospital of Sienna. The subject of his first case was a young man of a good constitution, who had had a simple double hydrocele for three years, without any apparent cause. Dr. P. introduced four needles into the scrotum, two on each side, one at the summit, and one at the base of each tumor; this enabled him to pass a galvanic current through the sacs, as soon as the needles were brought into contact with the respective poles of a small battery. The application was continued for five minutes, the patient feeling acute pain in the right testicle. On withdrawing the needles the tumors were much diminished, and after five hours they were almost empty. Towards evening, however, there was great heat and redness of the part, and the fluid was re-accumulated to its former amount. The operation was repeated after some days, and with a similar result; but, after a third operation, the fluid became permanently absorbed. Dr. Leroy, a Parisian surgeon, repeated a similar experiment at the Hôtel Dieu, on a man 70 years old, with a hydrocele on the right side. He caused a small battery, of 16 pairs of plates, two inches square, to act on the hydrocele, through two needles, placed, one in the subcutaneous cellular tissue of the scrotum, and the other penetrating into the cavity of the tunica vaginalis. In two days after, the tumor had entirely disappeared. A re-appearance of a little fluid rendered the repetition of the operation necessary twice afterwards, once for twenty minutes, and the other for ten. There was some pain. Dr. Stewart repeated the experiment on another patient, and, he thinks, with success. He gives the following directions. The needles should be at least four inches in length—and fine. After greasing—introduce cautiously, one into the subcutaneous cellular tissue of scrotum, at the summit of tumor, the other into the cavity of the tun. vag. near its base. The battery, which may be composed of from twelve to twenty pairs of plates of between two and three inches diameter, will now be brought into action by the addition of the acid solution (℥ij. of sulphuric acid to a quart of water to begin with,) and the poles will be placed in contact with, and keep permanently applied to, the eyes of the needles, already introduced into the scrotum. According to Dr. S., the operation should be continued for forty minutes or more, and a regular supply of electricity kept up by the occasional addition of a few drops of acid to the solution in the trough. The patient should maintain the recumbent position for several days.—*New-York Journal of Medicine*, Jan. 1843.

Warm Injections in Stricture.

Mr. Hudson, on this occasion, uses a catheter with its orifice at the extremity, not at the side, and for convenience, a stop-cock syringe, holding about an ounce, is fitted to its other extremity. He fills the syringe with some warm bland liquid (oil or barley water,) and then connects it with the catheter, and gently passes the latter down to the stricture. The moment he feels the resistance, he turns the stop-cock with the index-finger of the right hand (steadying the penis with the left,) and propels a jet of the warm liquid upon the strictured portion with moderate force, avoiding forcible pressure of the apparatus against the urethra. He tried this successfully in four cases, wherein he had previously failed in passing the smallest catheter.

Diagnosis of True and False Ankylosis.

In *true* Ankylosis, the origins and insertions of the contracted muscles, cannot be separated by attempts to move the joint; consequently no tention of their

fibres can be mechanically produced; but when *false* ankylosis exists, although extension be limited, the joint may remain capable of greater flexion, so that the resistance offered by the muscles is immediately apparent—in forming the diagnosis the history of the case may assist. Where, for instance, absolute immobility has succeeded, inflammation produced by mechanical violence, you may often conclude that true ankylosis exists. The deformity resulting from *white swelling*, on the contrary, is usually incomplete ankylosis. The pain, or sense of tightness, on the flexed side of the limb, produced by manual attempts at straightening, is often an indication of the evidence of some mobility. But a much more delicate test is the production of pain on the opposite side. A completely ankylosed limb also conveys to the hand of the examiner a sensation of union throughout. The tibia and femur, in true ankylosis of the knee, give the impression of a single bone: and many of the patient's sensations in the limb are referrible to a want of elasticity, which is not absent in false ankylosis, even when no motion is *visible.*—(*Lancet, Oct.* 14; *from Dr. Little's Lectures.*)

Ankylosis.—Rigidity or stiffness and adhesion of a joint. The term also includes the existence of *distortion.*

Complete or True Ankylosis.—A perfect ossific union of the articulating surfaces, and consequent incapability of restoration to function.

In *partial* or *false* ankylosis such a degree of impediment to the motions of the joint is supposed to have taken place as materially interferes with its function, but without any union, or with merely membraneous adhesion of the articular surfaces.

Simple induration of the tissues, without the existence of any ossific union, may suffice to produce complete immobility and occasion an erroneous belief in the presence of true ankylosis.

OPERATION FOR FISSURE OF THE SOFT AND HARD PALATE. By J. M. WARREN, M. D.

In this case the patient was a young man, 25 years of age, with a congenital fissure of the soft and hard palate; the bones being separated quite up to the alveolar processes with a deviation to the left side. Speech extremely indistinct, and deglutition very imperfect. The soft parts were scarcely perceptible, being almost concealed in the sides of the throat from the action of the muscles. With a long double-edged knife, curved on its flat side, the operator carefully dissected up the membrane covering the hard palate, pursuing the dissection quite back to the root of the alveolar processes. By this process, the membrane seemed gradually to unfold itself, and could be easily drawn across a very wide fissure. A narrow slip was now removed from the edges of the soft palate, and with it the two halves of the uvula. By this means a continuous flap was obtained, extending back from the roots of the teeth to the edges of the velum palati.

Lastly, six sutures were introduced which obliterated the whole fissure. In three weeks the patient returned home, a firm fleshy palate being formed behind, and half the fissure in the bony palate obliterated. Some time after, one half of the latter was closed.

CASE OF STRANGULATED HERNIA ON THE LEFT SIDE, AND PROTRUSION OF THE CŒCUM.

James Collier, aged two years, was discovered to have a reducible inguinal hernia

on the *left* side, a few months after birth. On the 5th September last, the mother found it larger than usual, and painful. She made ineffectual attempts to reduce it, till the 8th, when Mr. Jerrard, of Honiton, was sent for. The tumor had descended to the bottom of the scrotum, and was as large as an orange. There had been no fæcal evacuation since the morning of the 5th, and there had been repeated attacks of vomiting. Mr. J. attempted the Taxis—in vain. The violent efforts and crying of the child offered a great obstacle both to that and the operation, which was performed at 3 P. M.

"The tumor having been freely laid open, and its contents exposed, it was found to consist of the cœcum, with the appendix vermiformis, and about six inches of the ileum. The stricture was divided upwards. I now proceeded to return the protruded bowels, and here, as had been anticipated, the greatest imaginable difficulty presented itself. The child, who was very strong and muscular, continued to scream and strive in the most determined manner, so that no force which could with safety be applied, was adequate to the returning of any portion of the bowels; and I was obliged to support them with my fingers in the best manner I could for nearly an hour, when the child became exhausted, and ceased to scream and strive, at least with much violence, and I was enabled to reduce the hernia."—*Prov. Journ.* Nov. 25, 1843.

The wound was dressed as usual, and all did well.

ARCH-TOURNIQUET.

Dr. Oke, of Southampton, has drawn the attention of the profession to an instrument of this description.

It consists of an arch, a pad, and screw. The flanks of the arch are perforated with holes for the action of the external screw, which is worked by a short handle, as in the common tourniquet.

The pad is of the ordinary size, flat on one side, and convex on the other. Upon its flat surface there is a smooth cavity for the reception and working of the point of the screw.

Mode of application: Let the arch embrace the limb, so that one of the perforations of the flank may be exactly opposite the cavity on the flat side of the pad, previously applied over the trunk of the artery to be compressed. Then fit the external into the internal screw, and work it upon the pad till sufficient pressure be made to stop the circulation of the artery.

By this simple means any of the principal arterial trunks of the extremities may be compressed in the shortest possible time without strangulating the circumference of the limb and obscuring the operation with venous blood.

The arch is prevented from slipping by the pressure of the screw upon the pad.

These arch-tourniquets do not answer so well in practice as might be supposed. If the pressure is sufficient to arrest, or materially to control the flow of blood through the main artery, the pain is often great, and sometimes intolerable. Nor is the venous circulation so free as has been represented. The chief veins of the limb accompany the artery, and participate in its compression; the consequence is swelling of the limb. We would be far from saying that such an instrument is never useful. But its value has been over-rated.

CARIES OF THE OS CALCIS SUCCESSFULLY OPERATED ON. By Sir JOHN FIFE, Newcastle-on-Tyne.

A shoemaker, aged 24, cachectic from the effects of syphilis and mercury, was

admitted into the Newcastle infirmary, under Sir John Fife, August 24, 1843, with a sinus over the os calcis, of twelve months' duration, discoloration of the integuments, and a diseased state of the bone. The following operation was successfully performed.

"An incision, nearly perpendicular, was carried from the upper and outer part of the insertion of the tendo Achillis down to the os calcis, as far as the sole of the foot. A carious surface of bone was removed by cutting forceps; the bone towards its centre appeared soft and cancellated, containing much oily matter. Lint was introduced, over which a dressing of turpentine ointment, and the latter covered by a poultice. This treatment was continued for a fortnight, and afterwards the part was dressed with simple dressings, and bandaged."

The wound healed well.—*Provincial Med. Journal*, Nov. 11, 1843.

We would observe that the removal of carious or necrosed bone, is, perhaps, too frequently neglected. The tibia is very favourably circumstanced for the operation, but the femur may be subjected to it with advantage, and, indeed, it is one of wide applicability and use. On the femur, however, it is not free from danger. We have seen a piece taken out of the popliteal artery, where it is just entering the ham, by the trephine. Fatal hæmorrhage was the result, amputation being resorted to ineffectually.

NEW TRUSS.

At the Sheffield Medical Society, Mr. Overend exhibited a truss with a spiral spring in the centre of the pad, invented by a mechanic, resident in the neighbourhood of the town, who has for several years been affected with direct inguinal hernia. He had experienced much more relief by wearing a truss of this description than from any he had previously worn.—*Prov. Medical Journ.* Nov. 11, 1843.

NEW MODE OF REDUCING A LUXATION OF THE HEAD OF THE FEMUR ON THE DORSUM ILII.

A young man, not very powerful, met with a dislocation of the head of the left femur on the dorsum of the ilium, occasioned by the fall of a bale of cochineal upon his back as he was stooping. Reduction was at first attempted by the usual method of extension, with towels, as he lay upon the right side. Then he was put on his back, and reduction again attempted in vain. Another plan was now tried by Mr. Clark, surgeon of the South Hants Infirmary, under whose care the patient was.

"I now flexed the knee to a right angle, which raised the thigh to an angle of about forty-five degrees with the bed, perhaps near a right angle with regard to the pelvis; and, by bringing the foot in contact with the other leg, while the knee was sustained in a perpendicular direction, it is manifest that the femur was rotated, and the trochanter major thrown outwards, the head alone then resting on the ileum behind the acetabulum, which cavity, with the axis of the femur through its head, neck and shaft, were now nearly on the same plane; in this relative position of the parts, by throwing the limb outwards, the head of the bone, it is fair to infer, would start forwards to its natural situation; and such was the gratifying termination of the case, with no more force than was necessary to abduct the limbs. The pelvis still fixed to the right side of the bed, admitted of no change; the heel rested on the bed, as above, while I stood on the left side of the patient, with my right hand on the hip-joint, and my left holding the knee; thus the reduction was readily and audibly effected as I drew the limb towards me."—*Prov. Med. Journ.* Dec. 9, 1843.

THERAPEUTICS.

TREATMENT OF HYDROPHOBIA BY COMPRESSION OF THE CAROTIDS.

Dr. Allier states that, in 1837, while attending a servant attacked with confirmed hydrophobia, he was forcibly affected by the total impotence of medicine.

Recollecting then the efficacy of compression of the carotids in cases of epilepsy, he compressed simultaneously these two arteries at the commencement of a convulsive paroxysm. In an instant the convulsions ceased, and the patient fell into a kind of fainting fit. Alarmed at this, the family refused to allow the doctor to continue the methodical employment of this powerful treatment. The hydrophobic symptoms again showed with renewed violence, and the patient died on the following day, forty-eight hours from the commencement of the attack.

Dr. Allier remarks, that the compression of the carotids has not yet been employed, to his knowledge, in this terrible affection; its effects were sufficiently evident in the case above related to render it important to ascertain afresh its definitive influence on rabies. It is true that, by the employment of this measure, you do not attack the evil at its source, you do not destroy the *intoxication;* but, perhaps, in annihilating thus, by compression of the carotids, the deadly effects of this poison, namely, the convulsions, the fatal termination of this frightful malady might be prevented; since these convulsions are the cause of death either by asphyxia, or by the exhaustion of the nervous system.—*Clinique des Hopitaux des Enfans.*

DR. WIGAN ON TINEA CAPITIS.

Mode of Treatment proposed by Dr. Wigan.—The head is to be shaved carefully twice. The remedy proposed is Beaufoy's *concentrated ascetic acid*—as a preliminary, the acid diluted with three times its weight of water is to be used as a test or detector acid. On the application of this, a number of spots previously looking healthy become red patches—then with a piece of fine sponge tied to the end of a stick, or held in a pair of silver sugar-tongs, imbue each spot thoroughly with the strong acid for three or four minutes, and the business is done, one application being enough. The crust grows up with the hair—this should be removed as soon as a pair of fine scissors can be introduced beneath it.—*Medical Gazette*, Sept. 15, 1843.

VARUS MENTAGRA AND GUTTA ROSEA, THE SYCOSIS MENTI AND ACNE OF WILLAN, TREATED WITH SULPHATE OF IRON EXTERNALLY. By W. DAUVERGER.

The sulphate of iron is used in solution, either by bathing the part affected, or by applying linen dipped into it, or by sprinkling the ulcerated parts of the mentagra with a mixture of charcoal and sulphate of iron. The following are the formulæ employed by him.

No. 1.—Sulphate of iron 25 grammes; Distilled water 200 grammes—dissolve.

No 2.—Double the strength of the above.

No. 3.—*Ferro-carbonic powder.*—Sulphate of iron 10 grammes; Charcoal 35 grammes—powder and mix.

The inflammatory symptoms are treated with emollients. Then the patient is

to bathe the part twice a day with two glasses of warm water containing one or two spoonfuls of No. 1. A quarter of an hour after, he prescribes a local bath of an emollient decoction; and afterwards, if possible, a poultice of the same kind. If no improvement take place, he goes to No. 2. General means of treatment are used at the same time.—*Gazette Medicale*, Sept. 9, 1843.

OBSERVATIONS ON SPERMATORRHŒA. By W. H. RANKING, M.D. Cantab.

Spermatorrhœa is sometimes the consequence of continence carried to excess. The involuntary emissions, which constitute a really morbid phenomenon, are, however, usually traceable to a very different cause.

Causes.—(*Predisposing:*) A congenitally feeble state of the sexual organs, by which they are rendered easily susceptible of injury from over-excitement: this state is indicated by congenital phymosis, varicocele, and incontinence of urine. (*Exciting;*) Over-excitement of the organs, gonorrhœal inflammation of the urethra, affections of the rectum, constipation and ascarides, presence of sebaceous matter under the prepuce, and continence.

The *Modus Operandi* of these causes is sufficiently obvious.

Symptoms.—After abuse of the genital organs the patient finds himself infested with seminal emissions during sleep, which are at first accompanied by erections, but these erections soon cease—in sexual intercourse at this time he experiences more than usual difficulty in consummating the act; there is incomplete erection—ejaculation often difficult and painful. As the disease advances, the emissions increase in quantity and frequency, the patient being made conscious of them only by the sense of weakness on awaking. In sexual intercourse the ejaculation becomes more hurried; the mere sight or touch of a female will cause it. The mind becomes enfeebled, as well as depressed—cerebral and thoracic symptoms now occur—giddiness, noises in the ears, palpitation and cough. Digestion is impaired—bowels costive. Micturition frequent during the night—penis flaccid and inelastic—scrotum pendulous—testicles soft and tender to the touch. Urine turbid and nauseous to the smell, the turbidness appearing only towards the end—the emptying the bladder and evacuation of the bowels are accompanied by a seminal discharge. It is important to remark that the tendency of every case of morbid nocturnal emission is to become diurnal, if it be unchecked. Hence the absence of nocturnal discharge is no proof that the disease has vanished.

Morbid Anatomy.—1. Orifices of the *Seminal ducts*, or those ducts themselves dilated, or as it were dissected out by suppuration of the prostate—ducts cartilaginous or ossified. 2. *Vesiculæ Seminales* filled with pus, or with tubercular matter, mixed with elaborated semen. 3. *Vasa deferentia* tortuous and irregularly dilated. 4. Testicles soft and white, and diminished. Hence the essential lesion of spermatorrhœa is chronic inflammation of the parts concerned in the formation, conveyance, and expulsion of the seminal fluid.

Treatment.—First ascertain the exciting cause—if ascarides in the rectum are present, expel them in the usual way. When the complaint depends on stricture of the rectum, fissure of the anus, or hæmorrhoids, employ the appropriate surgical treatment—the sebaceous matter behind the prepuce is to be cleansed away. When the disease depends on general debility, and on atonic condition of the spermatic vessels, cold bathing and douches on the parts will be necessary. Mineral tonics also—the best is the tincture of the sesqui-chloride of iron. When the disease depends on undue exertion of the sexual organs, the excess must be relinquished, sexual intercourse prohibited—no stimulating food or drinks. Nitrate of silver is to be applied to the affected portions of the urethra;

one application generally suffices. Mode of operating:—a common bougie or catheter is to be passed first, and the length is to be noted at which the urine begins to flow—an inch short of this gives the site of the membranous part. The armed instrument is then to be passed to the same length, and the caustic made to revolve, by twisting the instrument for the space of an inch and a half, when it is to be drawn within the bougie and extracted;—if there is much pain or ardor urinæ, a hip bath may be used—leeches will occasionally be found useful—patient should lie on a hard mattrass, and a cold enema with 20 drops of laudanum at going to bed will assist in preventing the discharge.—*Lancet*, Oct. 14, 1843.

Mr. James Douglas, Lecturer on Anatomy in Glasgow, proposed, in the Medical Gazette, Sep. 29, 1843, to substitute a solution of sugar of lead with opium mixed with mucilage, as an injection, for the nitrate of silver, he having found it very successful in several cases.

Naphtha in Phthisis.

There has been a sort of controversy going on lately on the question if naphtha does or does not cure phthisis. Now probability would say no—some gentlemen say yes. Those who like facts have been favoured with the following from Dr. Rankin of Bury St. Edmunds, who has published them in the Lancet. He has given it in eight cases, three females and five males. Of these, three are already dead, the remainder are still alive, but dying gradually. In five of these cases there were unequivocal signs of cavities in one or both lungs, with emaciation and copious purulent expectoration. In the other three, the disease was not so far advanced: but, besides the signs of tubercular deposit, crepitous and submucous râles, with the appearance of pus in the sputa, indicated that softening had commenced. In none was the most trivial benefit perceptible; neither was the perspiration checked, as it is stated to be, as if by magic; nor were the cough and expectoration diminished. In two instances nausea was complained of, and every patient, without exception, implored its omission.

Nitrate of Silver to prevent Bed-sores, and for Burns.

Mr. Jackson, in a Paper read before the Sheffield Medical Society, has recommended the nitrate of silver for the prevention, or the cure of bed-sores.

The form which he uses is in the proportion of ten grains of the nitrate of silver to one ounce of water, applied by means of a camel-hair brush over every part exhibiting the slightest appearance of inflammation, two or three times a day, until the skin has become blackened; afterwards only occasionally.

Mr. Jackson lauds it in the treatment of burns and scalds. He instances several cases of superficial burns in children in which he found that in a very short time after its application the pain ceased, and vesication was totally prevented.

In the deeper burns he uses it, not that he finds that it can produce any effect upon the charred parts, but that, as Mr. Higginbottom has said, he finds the superficial burn healed, and the extent consequently circumscribed.—*Provincial Medical Journal.*

For our own parts, we question whether *any* applications will answer in the long run, either for preventing or for curing bed-sores, unless pressure is removed—and, if it be removed in time, whether any are necessary. Give us a good

piece of "buffalo's skin" with or without a hole in it, and attention to cleanliness, and we will make a present of all the drugs in the Pharmacopœia to our adversary. Prevent pressure then, and it *may* be prevented, and the bed-sores will take care of themselves.

CURE OF EPISTAXIS.

According to Dr. Negrier, one way of doing this is to hold up one or both arms, and close the nose at the same time. Simple, if successful. We have no doubt that, as in most cases bleeding at the nose stops of itself, holding up the arms would, in such, be certain to answer.

MIDWIFERY.

ON THE TREATMENT OF PUERPERAL CONVULSIONS BEFORE THE FULL TERM OF UTERO-GESTATION. By S. HARRIS, M.D. of Clarkesville, U.S.

The object of the author is to call the attention of the profession to a material point in the treatment of puerperal convulsions, when the ordinary remedies fail, and it becomes necessary to resort to delivery, at a time that the os uteri is found undilated, and undilatable by gentle means. The general rule is, that if the os tincæ is not dilated, or dilatable by easy means, no forcible entry into the uterus must be made under any circumstances. This is the rule laid down by the highest authorities in midwifery. The great difficulty is, when a case occurs in which delivery or death is the only alternative. Must we then, says Dr. Harris, quietly seat ourselves, and witness the certain triumph of this terrible disorder? Must the case be given up to nature, or are we not justifiable in making a forcible entry into the uterus, and extracting its contents? He expresses himself decidedly in favour of this last painful resource; he even considers it practicable in most cases, unless in the very early stages of pregnancy. He cites the case of a strong healthy young woman of about 16 years of age; in the fifth month of her pregnancy she was attacked with puerperal convulsions. All the ordinary means had been employed without any good effect. When he was called in, he found her in a state of total insensibility. Breathing laboured and stertorous—pulse weak and fluttering, sometimes imperceptible—no uterine action—os tincæ almost entirely closed, hard and unyielding—paroxysms recurred with unabated fury. Forcible delivery was accomplished. Blisters and warm applications were applied to the extremities, which were cold and clammy. She had two or three fits after delivery. She remained comatose for nearly 24 hours after, frequently without any pulse at the wrist. By proper care, however, she was soon restored to perfect health, and since then she has been pregnant three or four times. He cites another case somewhat similar, wherein he succeeded equally well in extracting the child without doing any serious injury to the uterus; but in which the patient eventually died, the forced delivery having, as he thinks, been too long delayed. The author of this paper acknowledges that it is only as a *pis-aller* he can recommend this course of forcibly entering the uterus and delivering the fœtus. He ventures to affirm, that if timely resorted to, it will, under the guidance of reason and the promptings of ingenuity, result very often in the preservation of human life.—*American Journal of the Medical Sciences*, July, 1843.

Obstetrical Auscultation. By H. Van Arsdale, M.D. of New York.

Among the sounds which obstetrical auscultation reveals, are two—the *uterine souffle*, and the *pulsations of the fœtal heart;* the former being an *uncertain*, and the latter a certain and positive sign of pregnancy. The uterine souffle is dependent on the arterial circulation of the mother; it is perfectly coincident with the mother's pulse. Laennec erroneously thought that this souffle was produced in the principal artery nourishing the placenta, and others were equally in error in supposing it to be produced in the iliac artery. The author, from his inquiries into the nature and value of the uterine souffle, lays down the following propositions :—

1. It differs entirely from the various arterial souffles: freedom from any shock, proximity to the ear, and want of uniformity are its peculiar characters.

2. Its presence is not an invariable and sure proof of the existence of pregnancy; it is sometimes detected in fibrous diseases of the uterus.

3. It is produced in the uterine arteries, and the explanation of its irregularities, intermittences and change of place, may be found in the difference of the calibre of the arteries on penetrating the womb, and also in the change of position of the fœtus in utero.

4. The point where the souffle is perceived, does not always correspond with the insertion of the placenta.

5. The period of its appearance is not constant. It is very difficult to discover before the end of the third month; but it is rarely absent at the end of the fourth, and continues to increase in intensity till the end of the sixth month. From this period it varies rather in its nature than in its intensity.

6. It is found most often in the lateral portions of the uterus, a short distance above the crural arches; but it is sometimes heard along the median line.

7. It is of no consequence in the diagnosis of cases of double pregnancy, of diseases of the uterus or placenta, or of the life or death of the fœtus.

The double pulsations, or the pulsations of the fœtal heart, are far the more important of the two sounds discoverable by auscultation. From his observations and researches on this important sign, the following propositions have been laid down :—

1. These double pulsations are a sure sign of the existence of pregnancy and of the life of the fœtus.

2. The variations in the circulation of the mother have no effect on that of the child.

3. The *increase* in the number of the double pulsations is unimportant, as being of rare occurrence, and of short duration—whilst, on the contrary, a *decrease* in the number, during parturition, and especially in a protracted labour, announces danger to the child, and indicates that the labour should be terminated by instruments, by version, &c.

4. These pulsations are not to be expected before the completion of the first half of pregnancy. The average number of beats is 135 in a minute, and they continue to increase in intensity from the moment when first heard until parturition.

5. Cases of double pregnancy may be diagnosed from hearing the pulsations of two distinct fœtal hearts, and these pulsations usually differ in number from eight to fifteen.

6. The detection of these pulsations is of the first importance in cases of extra-uterine pregnancy, since, if they were not discovered, the case may be mistaken for a fibrous tumor of the ovaries, or a simple cyst, and be treated as such.

7. They are discovered at a point corresponding with the dorsal præcordial region of the fœtus.

8. To discover the presentation, we have to draw an imaginary *horizontal* line, dividing the uterus into two equal parts. When the head presents, the pulsations are heard in the lower half; and when the pelvis presents, they are heard in the upper half.

9. To discover the position, we have to draw an ideal *vertical* line, bisecting the preceding one. When the back of the child is turned towards the right side, the pulsations are heard in the right half; and when turned to the left, they will be heard in the left half.

Lastly, the total absence of these pulsations should invariably deter us from performing the Cæsarian operation, or, indeed, from doing anything which may prove injurious to the mother, in the vain hope of aiding the child, which we are now bound to believe to be no longer alive.—(*New-York Journal of Medicine*, Sept. 1843.)

ON INFLAMMATION AND ABSCESS OF THE UTERINE APPENDAGES. By FLEETWOOD CHURCHILL, M.D.

The author of this paper is of opinion that many females have owed the delicate health in which they have remained for some time after their confinement to inflammation and suppuration taking place in the uterine appendages, that is, in the Fallopian tubes, the broad ligaments, or the ovaries; this condition of the parts has been unnoticed in consequence of the obscurity of the symptoms. He illustrates the disease by citing twenty-three cases of it collected by him from various sources. The first of these cases was that of a woman 44 years of age, who had had five children, the youngest being but two years of age. For some time past she had felt pain in the inguinal regions and above the pubis, which she attributed to pregnancy. Shortly after consulting the Doctor the pain increased, and she felt something give way to the left of the pubis, and immediately after a quantity of puriform matter was passed by the rectum, from whence a sanguineo-purulent discharge continued for a week, and then ceased, and she recovered. After a few weeks she had a return of the pain, followed by the discharge, which ceased again after a week or two. During the week preceding the discharge, she suffered from severe dragging pain in the inguinal regions, perspirations, loss of appetite, dysuria and tenesmus, all which symptoms disappeared after the matter was evacuated. The remedies employed were leeches and poultices to the seat of the pain; small doses of calomel and James's powder, and an occasional aperient. Another case was that of a woman aged 40, who was delivered by the forceps of a living child. She had been long in the first stage of labour, and the cervix uteri was torn off. Before assistance could be rendered, the perinæum was lacerated, and she had a tedious recovery, during which she had an attack of hysteritis, which was subdued by the ordinary means—in some time after she had an attack of peritonitis, and another attack in a month after. The cause of these sudden attacks was found to be a tumor near the right iliac region as large as a goose egg, and very tender on pressure. Two days after the detection of this tumour a large quantity of matter escaped from the vagina and rectum, and the tumour greatly diminished in size, and lost its tenderness. The discharge occasionally stopped for a day, and then returned, until all tumefaction had disappeared. She gradually recovered strength. In this case the escape of matter into the peritoneum was the cause of the two attacks of the peritonitis.

This inflammation of the uterine appendages may occur in an acute or chronic form. In the former it constitutes one of the varieties of puerperal fever. It is to the chronic form of the disease that Dr. Churchill has more particularly directed his attention. The *causes* of the attack are not easily assigned; it may follow

blows, falls, or a fright; it more frequently results from cold. It is sometimes attributed to the suppression of the milk or the lochia. The mode of invasion varies a good deal: sometimes there are few, if any, preliminary symptoms; uneasiness, perhaps, in one iliac region, and on placing her hand on the spot the patient detects a tumour. With respect to the *symptoms*, there is a distinct tumour—this may be found completely above Poupart's ligament, above the linea ileo-pectinea, sometimes occupying one iliac fossa entirely, and even extending upwards nearly to the umbilicus, and forwards to the linea alba—or it may be seated more deeply in the pelvis, just reaching to Poupart's ligament, protruding the groin, and from its fixedness giving the impression of its being firmly connected with these parts. The tumour is hard as a stone until suppuration commences, and equally tender on pressure. Stings of pain radiate in all directions from the tumour—when the tumour is situate in the pelvis and groin, the pain extends across that cavity, down to the anus, back, and down the thigh—standing upright is very difficult and painful, as also walking—there is tenesmus, and a desire to make water frequently. Fever is also present. The *terminations* may be resolution, or—abscess. The matter of this abscess may escape—*a.* externally through the abdominal parietes—*b.* into the peritoneum, causing peritonitis —*c.* into the vagina—*d.* into the bladder or rectum—*e.* into the surrounding cellular tissue—*f.* the extent of the disease, or the secondary affections caused by it, may prove fatal after an indefinite time. With respect to *treatment*, the indications are—1st. To procure resolution of the tumour; 2. To promote suppuration and evacuation of the matter. The former is best fulfilled by the application of leeches to the tumour, to be followed by bran-poultices, and repeated, if necessary. Fomentations and a hip-bath will also assist. If, however, suppuration take place, an opening should be made into the abscess, when it is possible, so as to decide the course the matter is to take—the best situation for the opening is through the abdominal parietes—the next through the vagina.—(*The Dublin Journal of Medical Science*, Sept. 1843.)

On Puerperal Convulsions. By Charles Halpin, M.D. Observations on Puerperal Convulsions. By Robert Johns, M.D.

Puerperal convulsions have been divided into three species—epileptical, apoplectical, and hysterical; the epileptical is the most frequent—they may occur either during the latter months of gestation, during labour, or after delivery. An attack of convulsions may set in at a time, when, from the favourable condition of the woman, we have least reason to expect it. Every thing may be progressing to our satisfaction, when suddenly, and without a moment's warning, a scream, or some stertorous or hissing sound from the woman, attracts our attention. On turning round, we find her in a state of insensibility; if she has been standing or sitting previously, she has fallen to the ground—body violently agitated—entire muscular system forcibly and irregularly contracted—hands firmly clenched—arms and limbs flung wildly round, or rigidly extended—head drawn violently backward, and neck twisted so, that frequently the face is turned toward either shoulder; eye-balls projected, either fixed with an appalling stare, or rolling wildly, and ready to start from their sockets; cheeks and lips red or livid—tongue protruded—mouth filled with frothy mucus—vessels of head and neck swollen and turgid—breathing stertorous, or accompanied with a peculiar hissing sound—pulse either full, slow, and soft, or very rapid, and frequently intermittent.

Dr. Halpin lays down the following propositions, as conclusions fairly deducible from his observations.

Puerperal convulsions occur most frequently in first pregnancies; the ratio

being six in seven. Among the predisposing causes, the age of the patient seems to have much influence. In one-fourth of the recorded cases the women were above 28 years old. There is no decided premonitory symptom invariably present. The presentation is almost invariably natural. They are always attended with danger both to mother and child. One-fourth of the mothers and two-thirds of the children perish. As to treatment, copious blood-letting, early resorted to, and rapidly effected, is of the first importance. Active purgatives should be given, either by the mouth or in injections, until the stomach and bowels are thoroughly cleansed of offensive matter. Should these measures fail, the uterus should be emptied of its contents as early as the state of the parts will admit of its being done *without violence*. The natural efforts are frequently sufficient to effect the delivery. Where interference is required, the forceps or vectis are to be preferred in many cases to turning, or the perforator, as turning the child is attended with great danger to the mother, as five out of seven of those on whom it has been practised have died.

Contrary to the opinion advanced by Dr. Halpin, viz. that there was no premonitory symptom in this affection, by a proper attention to which the attack may be prevented, Dr. Johns lays it down, that if, during the last months of pregnancy, the superior parts of the body, as the hands and arms, the neck and face, should become œdematous, the case will require very close and attentive examination; for if, in combination with this symptom, there exist headache, weight, or giddiness in the head, ringing in the ears, a temporary loss of vision, severe pain in the stomach with flushed face, there will be risk of convulsions—a risk that will be converted into certainty, if—1, the woman is pregnant for the first time, or had suffered similarly in former pregnancies; 2, where the head of the child presents, as in ordinary labours; and 3, where the woman is of a full and plethoric habit.—*Dublin Journal of Medical Science*, Sept. 1843.

PHYSIOLOGY.

ABSTRACT OF A REPORT BY MR. WHARTON JONES ON THE OVUM OF MAN AND THE MAMMIFERA, BEFORE AND AFTER FECUNDATION.

Before Fecundation.—The *Graafian follicles*, formerly supposed to be the ovarian ova, have been now proved to be merely the containing capsules of the real ova. The inner surface of the Graafian follicle is lined by a membraniform layer of nucleated cells, 1.2000th of an inch in diameter, called by Baer the *membrana granulosa*. At its surface this membrane is thicker than elsewhere, presenting there a greater number of cells, erroneously called by Baer *discus proligerus*. In the central part of it the ovum is imbedded, as an opaque white speck.

Ovum and Yolk.—The granular mass in the centre of the ovum is analogous to the yolk of the bird's egg; the broad transparent ring or *zona pellucida* surrounding it is acknowledged to be the optical expression of the circumferential doubling of a thick transparent membrane which encloses the yolk. The yolk consists of granules, the larger about 1.5000th of an inch in diameter, held together by a clear, viscid substance—the density of the yolk increases with its maturity. The *germinal vesicle* of mammifera was first discovered in the ovum of the rabbit—in such ova it is about 1.600th of an inch in diameter. Under a compound microscope it is seen as a simple cell—a transparent membranous wall with perfectly clear contents. At one side of it is a small dark, round spot, called by Wagner the "germinal spot," and is of general occurrence throughout the animal series. The germinal spot of the mammiferous ovum is a disc

1-3000th of an inch in diameter, composed of a finely granulated substance, strongly refractive of light, and attached to one part of the inner surface of the wall of the germinal vesicle, which it causes to be more prominent there than elsewhere. According to Wharton Jones, the germinal vesicle and its spot stand in the relation to each other of cell and nucleus.

Fœcundation.—Actual contact of the seminal fluid with the ova takes place in many of the lower animals; and in the mammifera, it has been shown that "post coitum all the surfaces over which the ovum or ova must pass, from the ovary to the uterus, become spread over with spermatozoa." Where does this contact take place? Bischoff and Barry believe that it occurs in the ovary. At the moment of ejaculation the semen is received directly into the uterus—it may reach the ovary partly by diffusion through the mucus in the genital passages, partly by the movement of the spermatozoa, which, according to Henle, can move one inch in seven minutes and a half. Another means to promote the progress of the seminal fluid towards the ovaries is quick and progressive, but not peristaltic, contractions, of the uterus and Fallopian tubes from the vagina onwards, which have been observed in bitches and rabbits post coitum.

Ovum before leaving the Ovary.—In the rabbit from nine to ten hours elapse *post coitum*, before the Graafian follicles burst—in other animals the time is variable. The ovum *having passed into the Fallopian tube*, acquires there a deposit of a thick, gelatinous matter. This investment increases in thickness according as the ova proceed in the tubes. "It has a stratafied texture, and deserves the designation of white of egg." In their passage through the Fallopian tubes, the ova (of the rabbit) become double, or more than double the size of ovarian ova. The changes in the yolk during this period are very interesting: it suffers division and sub-division after fecundation. The germinal vesicle has disappeared, but is replaced by two other vesicles or cells, each having its nucleus. Each of these cells is resolved into two other cells, and so on until the germ consists of a mulberry-like object, the cells of which are so numerous as not to be countable. (The very great complexity of the process here obliges us to refer our readers to Mr. Jones' Report itself—or to Willis' Translation of Wagner's Physiology.) The ova, on entering the Fallopian tubes, are surrounded by cells of the disc and membrana *granulosa* of the ovary; but these soon begin to be absorbed, and in the first or upper half of the tube they have wholly disappeared; that is, where the ovum is invested in the tube with a gelatinous layer. The ova in the rabbit reach the uterus about the third or fourth day after coitus.—with respect to the human ovum, the time has not been ascertained.

The Ovum in the Uterus, the Amnion, and the Blastodermic Vesicle.—When the ovum has reached the uterus, by which time the ovum has increased in diameter from one-fifth to half a Paris line, a layer of vesicles, similar to those constituting the mulberry-like structure, now appears lining the vitellary membrane or zone: where this layer and the mulberry-like object are in contact, a new membrane is generated, considered by Barry as the future *amnion*. In the interior of the mulberry-like structure there is now a large vesicle, in the centre of which is a spherical body, which seems to be the *true germ*. Thus, according to Barry, the rudimental embryo is the nucleus of a cell. On the fifth day *post coitum*, in the blastodermic vesicle is observed an opake spot, the *area germinativa*, *cumulus*, *germinativus*, &c. of authors. In ova of the sixth day, small inequalities are seen in the ovum, which are soon recognised as the villous processes of the *chorion*, a membrane formed partially at least from the external membrane of the ovum. From about the beginning of the ninth day the ovum has contracted an intimate connexion with the uterine mucous membrane. The latter is raised into minute folds and villi, covered by epithelium, which adheres closely to the external membrane of the ovum. In ova of the rabbit, half an inch in diameter, the blastodermic vesicle has been found to lie free within the external

membrane. The area germinativa is on the side opposite the insertion of the mesometrium. In a few hours the vesicle begins to be united by its animal layer to the external membrane, and then indirectly to the uterus. The blastodermic vesicle now changes forms. "It is no longer round, but first oval and then pear-shaped, its long axis always falling on the transverse axis of the somewhat oval ovum. In all these forms it is composed of the *area opaca*, enclosing a clear spore, *area pellucida*. These differences are owing to the different accumulation of cell-materials, especially in the animal layer; the cells appear to pass from the centre to the periphery, leaving the centre transparent. In the long axes of the area pellucida there is seen *a clear streak;* with this commences the first trace of the *proper embryo*. This usually occurs on the eighth or ninth day post coitum. Around and on either side of this streak formative opake matter collects, chiefly in the *animal* (serous) layer. The bright streak is a groove in that layer; at the end of it, corresponding with the broad end of the pear-shaped area, its two edges pass into each other by a small arch, whilst at the other end they unite in a point. The former is the head end, the latter the tail end, of the future embryo. The two accumulations of formative matter on either side of the groove, Reichart considers to be the original halves of the nervous system; Bishoff considers them the *original basis of the body of the embryo*.

The *area opaca* having extended itself, and again become round, and the *area pellucida* and the basis of the body of the embryo having become fiddle-shaped, that portion of the formative matter which immediately constitutes the two sides of the primitive groove, rises up in the form of "dorsal plates." These, meeting in the middle over the groove, convert it into the canal, in which are formed the central organs of the nervous system. Subsequently the circumferential part of the same formative matter becoming thickened, and bending downwards and inwards, constitutes "visceral plates."

Hence the development of the embryo of the mammifera is seen to be analogous to that of the embryo of the bird. So also is the farther development. The "dorsal plates" having closed in, the formation of the nervous centres having commenced, and the head end of the dorsal canal having become dilated, the embryo bends forward on itself, and an elevation of its anterior, and, in a less degree, of its posterior end, takes place from and above the plane of the blastodermic vesicle, so that the embryo is, as it were, constricted off from it. The margins of the "visceral plates" all round approach each other, and inclose the "visceral cavity," and gradually these plates also separate off from the blastodermic vesicle behind. The vegetative follows the direction given by the animal layer in the process; and above and below it is drawn within the visceral tube now in process of formation; but from the points of constriction, the vegetative layer is continued over the head and tail ends of the embryo, the coverings it thus forms, being the head and tail *involucra*. For the description of the formation of the amnion and chorian we must refer to the original Report. About the time the amnion begins to be formed, the vascular system first appears in the form of a *heart-canal*, in the anterior wall of the head end of the embryo, where it is continued into the blastodermic vesicle: a *vena terminalis* lines the periphery of the area opaca; and throughout the latter a vascular network may be traced between the two. The amnion having been formed, the development of the intestinal canal goes on; and during this the embryo, by development and approximation of the visceral plates, becomes more and more separated by constriction from the vegetative and vascular layers of the blastodermic vesicle, which now constitutes the *umbilical vesicle*. The vessels of the vascular layer, consisting of one or two veins, carrying blood from the yolk to the embryo, and an artery proceeding ftom it, are called omphalo-mesenteric. The canal, to which communication between the intestine and umbilical vesicle is now reduced, is the ductus *omphalo-mesentericus* or *vitello-intestinalis*. During the formation of

the umbilical vesicle, a small and very vascular vesicle, at first round, afterwards pear-shaped, sprouts out from the lower free end of the embryo. This is the *allantois*, a structure of the utmost importance in the further development of the embryo and ovum. The development of this differs much in the different orders of the mammalia. Its early disappearance or obscurity in our species formerly led to the erroneous idea, that no allantois exists in the human ovum. M. Serres, at a sitting of the Paris Academy last June, brought forward certain views on the origin of the allantois in the human ovum. The conclusions he arrives at from his investigations are:—that the human allantois is, as that of the rodentia, a pyriform vesicle, at first independent of the other membranes of the ovum; that it finally joins with the chorion, its vessels combining with the villi of the latter in originating the placenta; and that the isolated condition of the allantois in the human subject is limited to the period of about between 15 to 25 days from conception.—*Lancet*, Nov. 25, and Dec. 2, 1843.

Morality *versus* Physiology.

There has been a good deal of ink shed within this month or two on impotence, seminal weakness, and so forth. One gentleman laments pathetically enough, and not without reason, that the quacks have got possession of the subject. A student tells us that the regular lecturers seem to have *tabooed* it, but hopes for a new era and for better times. The main battle, however, has turned on the moral point of the question. One party contends that Nature meant men to have connexion with the female sex, and that prolonged continence or masturbation leads to an irritable condition of the generative organs, nocturnal emissions, "spermatorrhœa," and the ills that follow them.

Dr. Bull, on the other hand, protests against this doctrine as at once unphilosophical and irreligious, and declares with warmth that "*the laws of physiology are never at variance with those of morality.*"

How far this abstract position may be found, we will not take upon us to determine. But this we will say—that if morality means continence, the laws of physiology are *not* in its favour. Ask the opinions of men in practice. How many instances do they not see of health damaged by forced chastity in the female sex—of health restored by the mere fact of marriage. Amongst men, fewer cases of disorder or disease induced by abstinence from sexual intercourse present themselves, because men do not and will not restrain their inclinations to the extent to which women *must*. But the great experiment of the Church of Rome has surely settled the matter. The celibacy of its clergy has been a signal failure in a moral sense, however it may have served the political objects of the Papacy. Nature has been too strong for the fetters of priestly policy or of religion and impaired health, or a fanatical asceticism upon one side, with every species of excess upon the other, have been, in the gross, the products of the system.

If we descend to private and personal observation, we find corroborations of the same fact. Men, who, in early life, put an absolute check on their passions, are found on the whole to suffer from an irritable state of testis, head-aches, malaise, &c., and from nocturnal emissions. How rarely do we see these in married men! In short, the morality of *Nature* and of *Physiology*, if such morality there be, points not to continence, but marriage, and the condition which best realises *every* requisite appears to be *monogamy*.

THE PHYSIOLOGICAL EFFECTS OF HIGHLY CONDENSED AIR ON THE HUMAN BODY. By W. DETMOLD.

In the Archives for Mineralogy, Geology, and Mining, an article occurs giving a description of an ingenious contrivance in mining, where one element is made use of to resist another, and where human skill comes out victorious from the contest of the two elements. The object of the contrivance was to keep out the influx of water from a mining shaft by means of condensed air. The part of the article interesting to the medical man is the effect produced on animal life, that is upon the miners at work in the condensed atmosphere. The first phenomenon observed when the men entered into the condensed air, was a more or less severe pain in the ears. The pain commenced immediately on entering into the condensed atmosphere, and ceased as soon as an equilibrium was established between the condensed air and the air contained in the interior of the ear. In some cases the pain was scarcely perceptible. Another singular observation made by the workmen was, that no body was able to whistle in the condensed air. This the writer would explain in this way; whistling consists in sending a stream of condensed air through a small aperture in the lips, whereby sound is produced; but under a pressure of three atmospheres the ear is already so condensed that the ordinary effort which the muscles of the cheek and lips and the respiratory muscles are accustomed to make for the purpose of whistling, is not sufficient to compress the air any further. Another fact observed was, that in this condensed air *every body speaks through the nose;* that is, in correct language, the sound becomes nasal. This may arise from the pressure of the external air condensed on the nose being greater than that of the air passing through the interior of the nose, which air suffers some rarefaction by the animal heat. Another effect observed was that the workmen, in ascending the shaft filled with condensed air, did not become short of breath to the same degree, as they would have done in the free air—this is explained by the greater quantity of oxygen contained in a given volume of the condensed air than of the ordinary air, for which reason the lungs require a smaller volume of air to decarbonise the blood; hence the action of the respiratory muscles need not be so energetic. Might not this fact be made available in certain pulmonary affections, as asthma? Another extraordinary effect observed was, that a man who had been deaf, always heard better in the condensed air than any of the other miners, who were not deaf. How is this to be explained?—(*New York Journal of Medicine*, *Sept.* 1843.

REMARKS ON FATTY URINE, BY GOLDING BIRD, A.M. M.D.

April 22. Dr. G. Bird visited a Mrs. T. whilst still in bed. She was extremely fat, 35 years of age, and a mother. She was in perfect health—complained only of the occasional milky state of her urine, as possibly indicating some threatening ailment. She had been accustomed for several years to pass milky urine, especially during pregnancy. Frequently the urine, though not milky, had gelatinised on cooling. The appearance of this milky urine was not constant. This state most frequently appeared, when she first voided urine on arising from bed. It had become most frequent since she began to grow fat. The visit of Dr. G. B. was at 2 P. M. Three specimens of urine were shown him as having been passed since morning. The first was like ordinary urine, containing much pinkish urate of ammonia, which disappeared by heat—acid—not coagulable; no albumen. The second was pale as water, sub-acid, and on heating, clouds formed in it from coagulation of albumen. The third had a natural appearance and no albumen. She stated that this was the first time she ceased to pass milky

urine for the last three weeks. Dr. B. introduced a catheter and drew off a pint of fluid, having the odour, colour, &c. of hot milk and water—sp. grav. 1010—slightly acid—by repose a cream-like colour formed on its surface, the lower portion being nearly transparent. The following are the chemical characters of this milk-like urine.

A. A large and tremulous coagulum of albumen formed by heat, becoming firmer and more solid on raising temperature to boiling. B. On agitating about four ounces of the urine with half an ounce of pure ether, and setting the mixture aside in a well closed bottle, the mixture on the next day lost its opacity and presented three well defined layers—the lowest (the great bulk) was transparent urine—on its surface rested a transparent firm coagulum of fibrine, of a pale yellowish colour. The upper layer was an ethereal solution of fatty matter. When the latter was allowed to evaporate, a large proportion of yellow fat, like butter, was left. On examining the urine under the microscope no appearance of oil globules, blood-discs, or pus granules could be detected. This is directly opposed to the statements of some continental observers on the subject of fatty urine. Dr. G. B. considered this case to be one in which an excess of fat, not capable of any other appropriation, escaped by the kidneys in the form of an emulsion with the spontaneously coagulable albumen of the blood.—(*Medical Gazette*, Oct. 27, 1843).

MATERIA MEDICA AND PHARMACY.

ON YELLOW BARK.

From a variety of experiments performed by Mr. Battley, the following conclusions are drawn.

1. Bark will yield to *cold distilled water* all its constituents except starch and woody fibre, some earthy salts, and a small portion of tannin and quinine, which can only be separated from the tissue by means of an acid.

2. 28lbs. of good yellow bark will yield from 5 to 6 lbs. of concentrated liquor, sp. gr. 1·200, containing about 10 oz. quinine; the aroma and the greater part of the tannin and iron, and the peculiar acid of bark, of which only a small portion is lost, forming an inert salt with lime.

3. To form this liquor it is only necessary to sub-pulverize the bark, and macerate it from four to six hours in twice its weight of cold distilled water, repeating the process twice or at most thrice; to concentrate the infusions over a water-butt to sp. gr. 1200, and allow the liquor to deposit the gummy matter and so much of the tannin as it cannot retain in solution.

To separate the gum that may still remain in the liquor, and to prevent any decomposition, proof spirit is added to it, until the sp. gr. of the liquor is reduced to 1100. The quinine still remaining in the bark, may, if it be thought desirable, be separated by acetic acid, and precipitated from its solution by ammonia: and being re-dissolved in a small quantity of dilute acetic acid, may be diffused in the liquor.

The advantages of this medicine are—

1. That it contains not one but all the active principles of yellow bark.

2. That the greater part of the quinine is preserved *in its natural state* in combination with the peculiar acid of bark, in which it is more soluble than in sulphuric acid.

3. That the active principles *have undergone no change*, either in the exposure to too great heat, as in the decoction, &c. or by being brought into too close contiguity, as in the extract, in which secondary formations take place to so great an extent that water is incapable of re-dissolving it.

4. That, containing no starch and little gum, it will remain unaltered for a great length of time.

5. That the quantity of spirit contained in a dose is too small to be objectionable.

6. That it is a convenient, agreeable, and elegant medicine, miscible with wine or water in any proportions.

The above is a *pharmaceutical* analysis of yellow bark; Mr. Battley hopes soon to present a *chemical* analysis, as well as a similar set of experiments on the cinchona lancifolia.—(*Medical Gazette*, April 28th.)

THERAPEUTIC PROPERTIES OF MATICO. By Dr. HUNTER LANE.

The leaves of a tree called *matico*, growing wild in Peru, described by Dr. Martius, in the Pharm. Central. Blatt. Jan. 1843, as a "Phlomis," but delineated in the "Flora Peruviana," as a *piper angustifolium*, have long enjoyed celebrity among the Indians for their styptic properties, when applied to bleeding surfaces, as also for their aphrodisiac virtues, when administered internally. Their styptic powers, as an external application, have been fully established here. The leaves, the parts employed, are acuminated, lanceolate, slightly crenate, deeply wrinkled, of a dark green colour on the upper, and a pale green on the lower surface. They vary from three to six inches long, and from half an inch to an inch or more wide. From these leaves Dr. H. Lane had two preparations made; an infusion thus:—

℞. Matticonis Foliorum unciam; Aquæ destillatæ ferventis octarium. Macera per horas duas in vase leviter clauso et cola.

A Tincture thus:—

℞. Matticonis Foliorum uncias duas cum semisse; Spiritûs Tenuioris octarium. Macera per horas quatuordecim et cola.

These preparations have a pale green colour, faint aromatic odour, with a slightly astringent taste.

Dr. Lane has prescribed this remedy in some forms of chronic diarrhœa, but with uncertain results. In leucorrhœa he thought it realized all the objects derivable from the topical employment of the nitrate of silver injections, but with three superior advantages over that agent. It is more expeditious in its action, less variable in its operation, and more cleanly in its use. In the acute form of the disease it should not be ever employed. But in the chronic form, depending on diminished tone and necessary congestion of the secernent capillaries of the mucous lining of the respective parts of the sexual apparatus, whence the discharge proceeds, stimulating and astringent injections are generally found useful and effective. It is for cases of this kind of leucorrhœa, whether uterine or vaginal, that the Doctor recommends the matice as an injection. He has also employed it successfully in that description of varicose and ulcerated condition of the rectum for which Dr. Houston has proposed the topical application of nitric acid. Among the many diseases in which it would seem that this remedy is worthy of trial may be enumerated hæmatemesis, hæmoptysis, dysentery, and certain forms of hæmaturia.—(*Medical Gazette* Oct. 6, 1843.)

ON THE SOLUBILITY AND SOME OTHER PROPERTIES OF SULPHATE OF POTASH. By Mr. T. REDWOOD.

Chemists differ very much with regard to the extent of solubility of sulphate of potash in water. To settle the question, Mr. Redwood instituted some experiments, partly with sulphate of potash alone, some with the addition of a quantity of sesquicarbonate of soda, equal to half the quantity of sulphate of potash em-

ployed; and some, with the addition of bicarbonate of potash, equal to one-half the sulphate of potash. The inferences from these experiments were, that one part of sulphate of potash requires 11.63 parts of water for its solution at 63°; whereas one part of the sulphate of potash, mixed with half its weight of sesquicarbonate of soda, is soluble in 8.74 parts of water at the same temperature. It appears also that whilst the presence of sesquicarbonate of soda increases the solubility of sulphate of potash, a contrary effect is produced by the presence of bicarbonate of potash: the same amount of water being necessary in the latter case, as the two salts would require for their solution separately. The state of aggregation of sulphate of potash appears to influence its solution very considerably. The increased solubility of sulphate of potash, when mixed with sesquicarbonate of soda, arises from the partial decomposition of these two salts, according to Mr. Redwood. This is strictly in accordance with what happens in many analogous cases; thus, sulphate of barytes may be decomposed by carbonate of potash. These experiments by Mr. Redwood were undertaken in consequence of the recent case of poisoning with sulphate of potash. The poisonous influence of sulphate of potash has been ascribed to its insolubility; this is somewhat strange, as insolubility is in many instances, a preventive of poisonous effects. Dr. A. T. Thompson, at the Pharmaceutical Society, where the matter was discussed, set the matter in a clear light by defining a poison to be a "substance, which, administered in a small quantity, produces deleterious or fatal results." So that sulphate of potash can never be numbered in the list of poisons, in as much as "almost any substance would act injuriously, if taken in a poisonous dose." Did such a statement come from a less eminent authority, it would have a chance of being set down as what Mr. Locke calls an "identical proposition."—(*Pharmaceutical Journal*, Dec. 1843.)

CERATUM SAPONIS, BY DR. HOULTON.

Dr. Houlton observed that this preparation, being generally employed as an external dressing, requires to be of a much firmer consistence than a common cerate, in order to enable it to keep the under-dressings *in situ*; yet much of that sold in the shops is soft and very deficient in adhesiveness. The chairman (of the Pharm. Society) pointed out that there were two specimens of this preparation kept, one *hard*, and the other *soft*, the former passing under the name of Emplastrum Cerati Saponis. He had received two formulæ from members of the Society, which were as follow:—

CERATUM SAPONIS DURUM.

Liq. Plumb. Acet. ℔ 18.
Evaporate to ℔ 7.—then add—
Sap. Castil. ℔ 2.
Ol. Oliv. ℔ 4.
Ceræ Flavæ, ℔ 5.

HARD SOAP CERATE.

Take Black Vinegar, 1 gallon.
(The residuum of common vinegar after distillation.)
Yellow Wax, 2 pounds 8 ounces.
Olive Oil, 4 pounds.
Castile Soap, 2 pounds.
Litharge, in powder, 4 pounds.

Dissolve the soap in the vinegar; then add the litharge by degrees, and keep it stirring till the vinegar is absorbed. The wax must be dissolved in the oil, then added to other articles, and boiled to a proper consistence.

Pharmaceutical Journal, Dec. 1843.

PROVINCIAL SCHOOL OF PHARMACY.

The Pharmaceutical Society are in earnest, and are taking the way to exercise, at some future time, great influence. Their present object is to establish country Schools of Pharmacy. The Council have passed the following Resolutions:—

1st. That Country Schools be assisted in such towns or districts as can show to the Council a prospect of effecting this object, according to some satisfactory plan, and that the grants awarded in each case be equal to one fourth of the amount of annual subscriptions received from the town or district.

"2d. That in the establishing or assisting of Country Schools, such schools shall be considered as emanating from the parent Society, and shall be designated BRANCH SCHOOLS OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN."

An Annual grant of money—central control on the part of the Council—Lectures on Chemistry, Materia Medica, Medical Botany, and Pharmacy—a Library—and a Collection of Materia Medica, are the principal features of the plan.—(*Pharmaceutical Journ.* Dec. 1, 1843.)

THE PROFITS OF PHARMACEUTICAL CHEMISTS.

The last Number of the Pharmaceutical Journal contains a clever, and what is more sensible article on this subject. Without going into the reasoning, we may content ourselves with the conclusions at which the writer arrives, which are two:—

First, that the Pharmaceutical Chemists of this country are very inadequately remunerated for their labour.

Secondly, that the *actual cost* of the Druggist's stock is resolved into several parts, of which the price originally paid for the drugs in their simple state, forms so small a proportion, that the actual difference between the expense of medicine of the best and second quality, is very much less than the apparent difference according to the prime cost of the article. Consequently, the saving which is effected by the purchase of inferior drugs is much more insignificant than is generally supposed, and is a very paltry return for the loss of character resulting from such practices.—(*Ibid.*)

HYDRATED PEROXIDE OF IRON IN POISONING BY ARSENIC.

To a young woman, supposed to have swallowed about five drachms of white arsenic, one grain and a half of tartar emetic was given, and a clyster with three ounces of olive oil. After one minute, vomiting took place, of a greenish liquid and a little blood, in which arsenious acid was detected. Immediately the hydrated peroxide of iron, in a large dose, was commenced, and continued for several hours, till 2¼ pounds of it had been taken. After each dose renewed vomitings occurred by which all the poison seems to have been dislodged. In the evening the use of an emollient ptisan, containing some nitre, was followed by a copious stool and an abundant diuresis. The hydrated peroxide was continued, and in eight days the patient was convalescent.—*Gaz. des Hôpitaux*, Aug. 15.

Miscellanies.

Medical Statistics of the United States Frigate Potomac, Commodore John Downes, Commander, during a Three Years' Voyage of Circumnavigation of the Globe. By J. M. Foltz, Esq. Surgeon, U. S. Navy.

The above frigate, Potomac, 44, with a complement of 500 men, performed a voyage of circumnavigation of the globe, during a cruise of three years. During this period she traversed 97 degrees of latitude, from 40 degrees N. to 57 degrees S. crossing the Equator six times. A period of nearly two years was passed between the Tropics; and it may be here added, as singular, that while three months were spent within 6 degrees of the Equator, in the East Indies, where a malignant dysentery appeared on board, the same period, subsequently, was passed in the same latitude at the direct antipodes, in the vicinity of the Gallapagos Islands, where, from the absence of marshes, rank vegetation, and consequently of malaria, the crew enjoyed the average health of our own latitudes. In this paper, Dr. Foltz gives a concise statistical account of the health of the crew, with a brief notice of the character of the diseases developed in the different climates traversed, as well as those resulting from confinement on board ship, with observations on the medical topography of the most important parts visited.

On the 24th of Aug. 1831, the Potomac left the harbour of New-York, with 502 souls on board, all in apparent good health. On the 6th of October crossed the Equator, thermometer at 79 degrees, with fresh trade winds and cloudy weather—28 men on the sick report—53 days after leaving New-York arrived at Rio, 22 degrees, 30 min. S. lat. This place, notwithstanding its inter-tropical location, is free from malignant diseases—cutaneous diseases are very prevalent. On the 5th of November sailed for the Cape of Good Hope, and anchored in Table Bay on the 6th of December—passage boisterous—much rain and thick foggy weather—thermometer averaged 60 degrees at noon throughout the passage. Forty attacked with dysentery and diarrhœa. On the 12th of December, sailed from Table Bay. After doubling the Cape, had a rough sea—cold, wet weather, with westerly winds. Several cases of pleuritis occurred, and also catarrh and rheumatism. Arrived at the Island of St. Paul's, thence directed course to Quallah Battoo, on the West Coast of Sumatra, and arrived there on the 5th of February; remained here 12 days. The sick list, which consisted only of 3, now increased to 57—52 cases of disease of the bowels and 12 of bilious fever were treated within the month, notwithstanding every precaution was used to protect the men. The Malays in this vicinity are very healthy—the numerous merchant vessels which visit this coast, enjoy comparative health, when on the Coast of Sumatra, while the shores of Java and Borneo are shunned as a pest-house. Feb. 16. Sailed from the West coast of Sumatra and crossed the Line on the 20th, with thermometer at 85 degrees. On the 25th, sick list reduced to 30. On the 28th anchored at Bantam Bay, on the north western extremity of Java. A change was made here in the rations—rice and curry were substituted for beef, pork, and beans. The spirit ration was divided into three portions, one given in the morning, one at noon, and the other in the evening—all hands were ordered to wear flannel. Remained here 12 days; during this period mean temperature at noon 82 degrees. Fifteen cases of dysentery and four of fever admitted, with a daily average of 29 sick during our stay. 19th of March, arrived at Batavia—this port has been more fatal to navigators than any other on the globe. It was in this port that Dr. James Johnson encountered the malignant fever which committed such dreadful ravages in the English squadron in 1806, and which forms the basis of his in-

valuable work upon the diseases of tropical climates. Every precaution in the way of prevention was adopted. To Dr. Johnson we were much indebted for many valuable hints in prevention, indeed to him we acknowledge professional obligations, which it will be ever out of our power to repay. But little variation in the temperature during our stay at Batavia—the mean at noon was 82 deg. —the land breeze which reached us in the evening was charged with the most offensive effluvia from the fens and marshes. Notwithstanding all our precautions, the number of sick daily increased, the prevailing disease being a severe form of dysentery, accompanied with much inflammation, tormina and tenesmus. Copious bloodletting, local and general, at first—emetics to counteract the great tendency to visceral congestion, and to restore a healthy action to the deranged functions of the skin and liver. Mercurials, with opium and ipecacuanha, were found most beneficial—mercurial inunctions were also used to accelerate the action of the mercury—ptyalism always gave relief. When this treatment did not arrest the progress of the disease within a few days, bloody, fœted evacuations followed, with gangrene, collapse, and death. April 10th. Sailed from Batavia with 42 cases of dysentery—on the 20th, crossed the Equator, therm. at 90 deg. number of sick increasing—chloride of lime was used freely about the cots. After a passage of 39 days we arrived at Canton. From this time the health of the crew improved. June 5th. Sailed for the Sandwich Islands—the occurrence of strong westerly winds and cool wet weather soon changed the character of the diseases on board, and pleuritis, intermittents and inflammatory affections took the place of dysentery—25 average on the sick report. July 23. Arrived at the Sandwich Island, Oahee. The natives here suffer much from a species of leprosy, called the *craw-craws;* to cure which they have recourse to the *Kava-root*, a powerful alterative and narcotic. Left on the 15th Aug. and in 28 days arrived at Otaheite. On our passage from this to Valparaiso, it being the winter here, we had cold weather, wind and rain, which again changed the type of disease—15 cases of pneumonia and pleuritis, with 22 of rheumatism. In 34 days, arrived at Valparaiso with 36 sick. Dec. 2. Sailed for Lima, and arrived at Callao on the 15th, the sick report being reduced to 18—remained in this port 75 days—the weather here uniformly clear with a delightful south wind—here it never rains—dysentery sometimes prevails to a great extent, and during July and August, those predisposed to tubercular phthisis are liable to have the disease developed. Feb. 28. Sailed for Valparaiso, and reached it in 16 days. April 25, a case of small-pox occurred, and in a few days another case, followed by another—those were sent on shore—other cases occurring, made it evident that the contagion was on board-ship. It was therefore determined to inoculate the whole ship's company. 287 were inoculated—85 of those inoculated took the disease, many of them having it in a mild form. Next sailed for Callao, and then for the Gallapagos Islands, and, Sep. 1, anchored in Essex Bay, Charles Island—remained 10 days in port, the mean of the therm. being 73 degrees, that of barom. 20.90 in. and the average on sick report, including several cases of dysentery, was 21. All those attacked with dysentery, had suffered from the same disease at Batavia, the Antipodes of our present position. Hence sailed to Guayaquil, and arrived at Puna. Here the crew were much disposed to disease of the intestinal canal—dysentery continued to increase; it was not so malignant or intractable, however, as at Batavia. Some cases of chronic hepatitis also occurred, which yielded to mercurial alteratives and the nitro-muriatic acid, internally and in baths. Sept. 28. Sailed for Payta. The cruising grounds for the American ships employed in the sperm whale fisheries are directly off this port; they frequently resort here for fruits and vegetables, as anti-scorbutics. At the head of the list of the anti-scorbutics among the whalers stand raw potatoes; two are served out daily to each man, and eaten raw with vinegar. On the 9th of February, sailed for the United States from Valparaiso. March 6, were off Cape Horn. Character of the diseases now changed. Cases of pleuritis, cy-

nanche tonsillaris, and rheumatism, augmented the sick report. On the 23d of March arrived at Rio—remained here 16 days. After leaving Rio several cases of diarrhœa occurred. April 27, crossed the Equator, and reached Boston 23d May. On our arrival at the United States, the health of the crew was such as to enable all but six to take their discharge. The Potomac, during the voyage of circumnavigation, sailed over 61,000 miles, having been at sea 514 days. She crossed the Equator six times, varying from 40° North to 57° South.

The Endemic Influence of Civil Government, illustrated in a View of the Climate, Topography, and Diseases of the Island of Minorca, with an Account of its Medical Faculty—of the French Military Hospital on the Isle de los Reyos—and of the Statistics of the United States Naval Hospital at Mahon, for the years 1839-40 and 41. By J. M. Foltz, A.M., M.D., Surgeon U. S. Navy.

We shall extract from this article those points which appear the most interesting to the medical reader. Dr. Foltz, the writer, served as surgeon to the Naval Hospital established in Minorca, this island having been the depôt for the United States' naval forces in the Mediterranean for more than twenty years. The period of the writer's residence in the place was from 1839 to 1841 inclusive. With respect to the *diseases* of Minorca, he observes that their history, as given by Cleghorn, who was stationed in this place as Port-surgeon from the year 1744 to 1749, at a time when the island was in the hands of the British, exhibits, as compared with the present, a complete revolution in their character within the century; this change he accounts for by the pernicious influence of bad government, since the place has fallen into the possession of the Spaniards.

In Cleghorn's time the population of the Island was 40,000, and such was the healthy state of the place, that, in a residence of five years, this writer states, that he did not "meet with a single individual who was lame or deformed," and "cases of paralysis were of extremely rare occurrence." At present the population is reduced to 18,000, and the streets and highways are crowded with the maimed and the blind, whilst the number of mendicants and the poverty of the natives is now so great, that there is no hospital for them. *Fevers* are of considerable frequency; they are almost invariably of a mild tertian form—the cold stage is very short; the hot stage much more violent, and accompanied usually with delirium; this is followed by an intense sweating stage, which occasions great prostration and emaciation, and renders the patient very susceptible to organic disease on the slightest exposure. The following prescription was found very effectual in the treatment of the most obstinate intermittents, both in America and Minorca, in the hands of Dr. Foltz.

R. Pulv. Cort. Cinchonæ	- - -	℥j.
Bitartrat. Potassæ	- - - -	ʒij.
Pulv. Caryophyll.	- - - -	ʒj.
Vin. Rubr. (Port.)	- - - -	Oj. M.

Dose—one ounce to be taken every hour, for six hours preceding the expected paroxysm.

Neuroses.—Next in frequency, but first in point of fatality, stand the diseases of the nervous system; they are to be found here from the most insidious forms of neuralgia to the aggravated modifications of paralysis and mania. *Cancerous affections*, including *lupus*, as also *caries* and *necrosis*, are very numerous; they are confined, however, to the poor. *Aneurysm* is a very common disease, and generally proves rapidly fatal, from the circumstance of its proper treatment not being understood. It was to a case of aneurysm that Dr. Foltz was indebted for his introduction to his medical confrères at Mahon.

The Medical Faculty of Minorca is under the direction of the Royal Medical Junto at Madrid, without whose license no one is permitted to practise medicine or surgery within the dominions of her Catholic Majesty. The medical sub-delegate for Mahon is Dr. F. Fernandez, a well-educated and clever practitioner; there are other practitioners also of respectable professional attainments; but they are all eclipsed by a host of illiterate, ignorant pretenders, who purchase by a bribe a license to practise—at the head of these is a man of much tact and great effrontery, combined with great moral courage, who is ever ready to rush into every operation, generally to the ruin of his patient; still he monopolizes the most lucrative practice of the place. This man was originally a barber. The medicines most in repute for every form of disease are Morrison's pills, and Leroy's purgative mixture. Dr. Foltz witnessed several fatal results in cases in which they were employed in Mahon. The Doctor and his medical friends who accompanied him, were frequently consulted, and requested to perform several operations, which they did. In this way they learned much regarding the state of the profession, and the various modes of treatment; among these, charms, amulets, and the superstitious influence of the Church occupied a large share. The priest sells amulets to ward off fever; keeping a cross, they say, from the fig-tree, over the heart, will have the same effect. He quotes several instances of the disgusting and ridiculous mode of treatment employed here. The practice of the Doctor and his countrymen being wholly gratuitous, soon became extensive; the native practitioners, however, became jealous, and soon put a stop to them. The only hospital at Mahon is an hospital for foundlings, which is liberally endowed. There is not in the Island a dispensary for the distribution of medicines to the poor; and very little charity from the medical men, who are, indeed, compelled by their own wants to seek some remuneration for their services.

Near the centre of the harbour of Mahon is the Isle de los Reyos, a small island on which a large naval hospital was erected in 1796, for the use of the British fleet. In the Summer of 1839, Dr. Foltz visited Algiers, the first year of the war against the Bedouin chief. Here he ascertained that there was an average of three thousand deaths among the troops from dysentery and fever, since the commencement of the war. The total number sick in the hospital at Algiers at the period of his visit was near three thousand. The French Government applied for the use of the hospital at Mahon, for such of the sick as could be transported there—the application was granted. The medical part of the Hospital was under the charge of M. Hutin, and the surgical under that of M. Jourdan, to whom were attached thirty medical assistants. The treatment was decidedly Broussaian. Dr. Foltz, who had himself encountered this disease in the East Indies, where its progress was so rapid that it often proved fatal within 48 or 72 hours, found that the only safety for the patient consisted in an energetic and vigorous treatment. This disease in Africa presented many of the peculiar symptoms met with in the disease as it occurred in India, particularly in the derangements of the functions of the skin and liver, in which the prompt use of the lancet and mercury were loudly demanded. For a knowledge of the judicious and successful treatment of this disease he acknowledges the medical practitioner to be indebted to the excellent work of Dr. James Johnson on Tropical Climates; he further states, that much esteemed as this work is in Europe and the United States, it is to the practitioner in inter-tropical climates chiefly that its great merits can be known. Dr. Foltz next proceeds to give an account of the United States' Naval Hospital at Mahon.

The majority of admissions into this hospital were from diseases of the intestinal canal; this tendency to gastric disease, especially in hot climates, is doubtless produced by the indigestible diet to which they are confined at sea. He found the most careful treatment of little avail, as long as the patient was confined on board-ship. When ulceration had taken place in the mucous membrane,

as happens in a majority of cases, he found the mineral astringents the most effectual; and at the head of these he places the acetate of lead, in doses of from one to two grains, twice a day, in combination with one-eighth of a grain of opium. The sulphate of copper also, combined with opium or lactucarium, he also used with benefit; but a careful attention to diet will be found most important in such cases, to which the use of enemata of cold water, or a simple infusion of sem. lini are useful adjuvants. The occurrence of delirium tremens is very frequent among seamen, as may naturally be expected. The treatment adopted by Dr. Foltz, and found most effectual, were emetics and opium, and, where much arterial excitement existed, venæsection. During an experience of more than twelve years in the Navy, only one fatal case of this disease came under his observation, and in this instance it was associated with hæmoptysis.

He is satisfied that, notwithstanding the lauded salubrity of the Mediterranean, and the advantages it holds out to the pulmonary invalid, Minorca at least possesses none of these recommendations. On the contrary, he found that all who were predisposed to pulmonary disease, or were of a tubercular diathesis, were sure to have the latent disease developed. Dr. Foltz, having met with an article in the Medico-Chirurgical Review, on the advantages of high temperature after injuries and important surgical operations, determined to give the plan of treatment a fair trial. An opportunity presented itself here in the case of a man, who had the upper and posterior portion of the right lung severely wounded by a stab of a knife. The temperature of the apartment, in which this patient lay, was kept as high as the patient could endure without inconvenience. This patient recovered, which the doctor attributed, in a great degree, to the high temperature. We feel it necessary to discontinue our notice of this paper from want of space.—*New-York Journal of Medicine*, July, 1843.

An Opposition Coach.

Priessnitz has got a rival close to his own castle! About four miles from Graeffenberg, in the lovely valley of Lindiviesse, Dr. Schrott, an old schoolfellow of the Apostle of Hydropathy, has started a Cure-all, in opposition to the Silesian peasant. His Methodus Medendi is no vile imitation of that of the far-famed Practitioner of Graeffenberg. It is a veritable Antipous. The one inculcates the drinking of water, and water only. Schrott, forbids water and all other fluids—and thus cures by thirst! The following extract from Mr. Beamish, one of the disciples of Priessnitz in this country, will give a notion of the New Dipsopathic doctrine and practice.

"About four miles from Graeffenburg, up a lovely valley, is situated the village of Lindiviesse, where dwells a schoolfellow of Priessnitz, by name Schrott, a remarkable, but illiterate man, who told me that he had never opened a book on medicine, physiology, or anatomy, and that he never would. He undertakes to cure ALL diseases, not by the exhibition of cold water, which *he ridicules*, but by withholding from his patients all fluids. The treatment which he has adopted, and which may be termed the Dipsopathic (Διψα, thirst,) though clearly applicable to a variety of ailments as we shall presently show, I found, in a long interview, to emanate from strangely confused physiological notions. He talked of placing the human being in the same condition as it existed in the womb by means of moist warmth, with which he surrounds it, (the *feuchte wärme*,) communicated by *three* wet sheets, in which the patient sleeps. They are all applied in a manner similar to Priessnitz's *one*, the process usually commencing at two o'clock in the morning. The patient remains packed up till eight or ten o'clock. The system of total abstinence from drink is carried on for *five*, and sometimes for *eight* days consecutively; the alvine excretions cease,

and the urine is excreted in small quantity, very turbid, and deposits various salts. One patient told me that he had been twelve days without any relief from the bowels; and I heard also of one who had been *seven weeks*. Sometimes, however, diarrhœa occurs, which Schrott considers as a favourable crisis.

"By depriving the stomach of fluid, the absorbents of the skin are brought into powerful activity; and, by the moisture having to travel from the extremities of the frame, Schrott thinks that it carries with it the humours of the blood to the bladder, from whence they are ultimately expelled with the urine; because in the urine he finds large deposits, to which he triumphantly points as containing the extraneous matter that caused the disease." 98.

Mr. Beamish, while he protests against this hunger and thirst cure, as invading the territory of the water-cure, candidly acknowledges that there may be cases that have resisted the Allopathic and even the Hydropathic Systems, and which might be treated with success by the Dipsopathic plan. "I allude to those where there had been serous or sanguineous effusion, or *dilatation* of part of the brain." We need not say more.

BIBLIOGRAPHICAL RECORD.

1. The Popular Cyclopædia of Natural Science. Parts I. and II. Animal Physiology. By W. B. CARPENTER, M. D.—W. S. Orr and Co. October, 1843.
☞ *A most valuable Composition.*

---

2. Pharmaceutical Journal and Transactions. Edited by JACOB BELL. October, November, December, 1843.

---

3. Posthumous Extracts from the Veterinary Records of the late JOHN FIELD. Edited by his Brother, WILLIAM FIELD, Veterinary Surgeon, London. Octavo, pp. 236. Longman and Co. Nov. 1843.

---

4. Cataract, and its Treatment; comprising an Easy Mode of Dividing the Cornea for its Extraction, and appropriate Means for removing the different Forms of that Affection, &c. By JOHN SCOTT, Senior Surgeon to the London Ophthalmic Hospital, &c. Octavo, pp. 69. Churchhill, 1843.

---

5. The British Journal of Homœopathy. Vol. I. 1843. Edited by J. J. DRYSDALE, M.D., J. R. RUSSELL, M.D., and FRANCIS BLACK, M.D. Octavo, pp. 422. Leath, St. Paul's Churchyard. Bailliere, Regent Street.

6. The New-York Journal of Medicine and the Collateral Sciences. Edited by SAMUEL FORRY, M.D. Published bimonthly. Vol. I. No. I, July, 1843.
☞ *In Exchange.*

---

7. Medico-Chirurgical Transactions, published by the Medical and Chirurgical Society of London. Second Series, Vol. VIII. 1843.

---

8. A Practical Treatise on Organic Diseases of the Uterus; being the Prize Essay to which the Medical Society of London awarded the Fothergillian Gold Medal for 1843. By J. C. W. LEVER, M.D. Assistant-Accoucheur at Guy's Hospital, &c. Octavo, pp. 240. Longman and Co. 1843.

---

9. Clinical Remarks on Certain Diseases of the Eye, and on Miscellaneous Subjects, Medical and Surgical, including Gout, Rheumatism, Fistula, Cancer, Hernia, Indigestion, &c. By JOHN CHARLES HALL, M.D. M.R.C.S., &c. Octavo, pp. 228. Churchill, London, 1843.

---

10. On the Nature and Treatment of Stomach and Renal Diseases; being an Inquiry into the Connexion of Diabetes Calculus, and other Affections of the Kid-

ney and Bladder with Indigestion. By William Prout, M D. F.R.S., &c. Fourth Edition, revised. Churchill, London. 1843.

---

11. Elementary Instruction in Chemical Analysis. By Dr. C. Remigius Fresenius, Chemical Assistant in the Laboratory of the University of Giessen. With a Preface by Professor Liebig. Edited by J. Lloyd Bullock, Member of the Chemical Society, &c. Octavo, pp. 284. Oct. 1843. Churchill, London.

---

12. The Principles of Medicine: comprising General Pathology and Therapeutics; and a brief General View of Etiology, Nosology, Semeiology, Diagnosis and Prognosis. By Charles J. B. Williams, M.D., F.R.S., Professor, &c. in University College, and First Physician of the Hospital, &c. 8vo. pp. 390. Churchill, London, 1843.

---

13. The Endemic Influence of Evil Government, illustrated in a View of the Climate, Topography, and Diseases of the Island of Minorca, &c. By J. M. Foltz, M.D., Surgeon in the American Navy. Octavo, New York, 1843.

---

14. The Anatomy of the Arteries. By Richard Quain, Esq., Professor of Anatomy, University College, &c. Part XVI. Five Plates, with Letter-press, price 12s. 1843.

---

15. An Essay on Thunder-storms, their Phenomena, and Means of Safety from their Effects. By E. A. Turley, M.D., &c. Worcester, Nov. 1843. pp. 35.

---

16. Remarks on the School of Instruction for Military and Naval Surgeons. In a letter to the Right Hon. Sir Robert Peel. By Sir George Ballingall, M.D., Regius Professor, &c. 1843.

---

17. A Practical Manual of the General, Chemical, and Microscopic Characters of the Blood, and of the Secretions of the Human body, &c. By John William Griffith, M.D. Small Octavo, pp. 64. R. & J. Taylor. 1843.

---

18. The Oculist's Vade Mecum; a complete Practical System of Ophthalmic Surgery. With numerous Wood-cuts. By John Walker, Surgeon to the Manchester Eye Hospital, &c. Longman & Co. 1843.

---

19. Memoire sur deux Instruments nouveaux destinas a l'Extraction et l'Abaissement de la Cataract. Par le Docteur Alphonse, de Grand Boulogn. Marseille, 1843.

---

20. An illustrated Catalogue of the Works published by John Van Voorst, Paternoster Row, London. 1843.

---

21. The New York bi-monthly Journal of Medicine and the collateral Sciences. Edited by S. Forry, M.D. Sept. 1843.

☞ *In Exchange.*

---

22. Introduction to the Study and Practice of Midwifery. By William Campbell, and by Alex. D. Campbell, B. A., Trinity College, Dublin, &c. Second Edition, pp. 804. Edinb. Whyle, 1843.

☞ *Much improved.*

---

23. Researches on the Decomposition and Disintegration of Phosphatic Vesical Calculi, and on the Introduction of Chemical Decomponents into the Living Bladder. By S. Elliott Hoskins, M.D. (From the Philosophical Transactions.)

---

24. Caloric, its Mechanical, Chemical, and Vital Agency in the Phenomena of Nature. By Samuel L. Metcalfe, M.D. Two Vols. 8vo. Pickering, London, 1843.

---

25. The Surgeon's Vade Mecum. By Robert Druitt, Surgeon. Octavo, pp. 572. Renshaw, London, 1843.

---

26. Principles of Forensic Medicine. By William A. Guy, M.B. Part II. London, H. Renshaw. 1843.

---

27. The Cold Water Cure, as practised by Vincent Priessnitz, at Graafenberg, in Silesia, with an Account of Cases. By Richard Beamish, Esq. F.R.S., &c. 8vo. pp. 104. Highley, 1843.

---

28. The Physiology of Inflammation, and the Healing Process. By Benjamin Travers, F.R.S., &c. Octavo, pp. 226. 1843.

---

29. A concise Exposition of Homœopathy—its Principles and Practice, &c. By George Newman, M.R.C.S. 8vo, 1843. Leath, Publisher.

---

30. The Principles of Physiology applied to the Preservation of Health, &c. By Andrew Combe, M.D. With Fifteen Woodcuts. Twelfth Edition, enlarged,

Maclachlan, Stewart, and Co. Ed. 1843. Price 2s. 6d.

31. On Superstitions connected with the History and Practice of Medicine and Surgery. By T. J. PETTIGREW, F.R.S. &c. Octavo, pp. 167. Churchill, London. Nov. 1843.

32. Gonorrhœa, and its Consequences; with a short Historical Sketch of the Venereal Disease. By G. B. CHILDS, M.R.C.S. Highley, London. 1843.

33. The Hand-book of Hydropathy, Professional and Domestic. By Dr. J. WEISS. Octavo. Madden and Co. 1843.

34. The Pharmaceutical Journal and Transactions, &c. Dec. 1. 1843.

35. A Dictionary of Practical Medicine, &c. By JAMES COPLAND, M.D. Part IX. London, Longman and Co. Dec. 1843.

36. Removal of a Dropsical Ovarium. By GEO. SOUTHAM, Surgeon to the Salford Royal Dispensary. From the Medical Gazette. Dec. 1843.

37. Elements of Natural Philosophy; being an Experimental Introduction to the Study of the Physical Sciences. By Dr. GOLDING BIRD, A.M., M.D. Second Edit. revised and enlarged. Churchill, Dec. 1843.

38. The Medical Almanack or Calendar of Medical Information, for the Year 1844. Being Bissextile, or Leap Year. Churchill, 1843. Price One Shilling.

☞ *A most valuable compilation.*

39. Observations on Pneumonia and its consequences. With Plates. By THOMAS ADDISON, M.D. Dec. 1843.

40. The Sources of Physical Science. Being an Introduction to the Study of Physiology through Physics, &c. By ALFRED SMEE, F.R.S., &c. Octavo, pp. 296. Renshaw, Strand. Dec. 1843.

41. Cases of Pueperal Convulsions, with Remarks. By Dr. Lever. [From Guy's Hospital Reports.]

42. Guy's Hospital Reports. (Second Series.) No. II. October, 1843. Edited by Drs. BARLOW, COCK, BIRKETT, BROWNE, and POLAND. Price Nine Shillings. Highley, 32, Fleet Street. 1843.

43. A Manual of Medical Jurisprudence. By ALFRED S. TAYLOR, Lecturer on Medical Jurisprudence, &c., in Guy's Hospital. Octavo, pp. 677. Churchill, London. Dec. 1843.

☞ *This valuable work will be noticed in our next number.*

44. Further Contributions to a Knowledge of the Influence of Employments upon Health. By WILLIAM AUGUSTUS GUY, M.B., Cantab. Professor of Forensic Medicine, King's College, &c. From the Quarterly Journal of the Statistical Society.

45. Observations on the Proximate Cause of Insanity. By JAS. SHEPHERD, M.R.C.S. Being an attempt to prove that Insanity is dependent on a Morbid Condition of the Blood. Small 8vo. pp. 104. Longman and Co. 1843.

46. The Influence of Climate, and other Agents, on the Human Constitution, with reference to the Causes and Prevention of Disease among Seamen: with Observations on Fever in general, and an Account of the Epidemic Fever, of Jamaica. By ROBERT ARMSTRONG, M.D., F.L.S., Deputy Inspector of Hospitals, &c. Octavo, pp. 207. Longman and Co. Dec. 1843.

47. The Anatomy, Physiology, and Pathology of the Human Teeth; with the most approved Methods of Treatment; including Operations and the Method of making and setting Artificial Teeth. With 30 Plates. By PAUL P. GODDARD, M.D., M.A.N.S., &c. Demonstrator of Anatomy in the University of Pennsylvania, &c. Aided in the Practical Part by E. PARKER, Dentist. Quarto. Philadelphia, Carey and Co. 1844.

48. Elements of Physiology, for the Use of Students, and with particular Reference to the Wants of Practitioners. By RUDOPH WAGNER, M.D., Professor of Comparative Anatomy and Physiology in the University of Gottingen, &c. Part III. (completing the Special Physiology), on Sensation and Motion. From the German, with Additions. By ROBERT WILLIS, M.D., Member of the Royal College of Physicians, &c. With illustrative Wood-engravings. London, Sherwood, Gilbert, and Piper, Paternoster Row. 1844.

EXTRA-LIMITES.

INDIAN MEDICAL SERVICE.

India, 20th August, 1843.

SIR,—With reference to an attack lately made in the Medico-Chirurgical Review on the character of the Indian Medical Service, and the recommendation of Messrs. Annesley and Martin to abolish the Medical Board, &c., permit me to call your attention to the articles marked with a cross in the newspapers I take the liberty of sending you. I shall feel much obliged if you will devote one half-hour of your valuable time to them, because they express both the opinion of the public of India, and the sentiments of all or a great majority of the medical men who are still in the East India Company's Service. The connexion with it of those two gentlemen having ceased, it is little creditable to the better feelings of our nature, that they should suggest measures opposed to the interests of a body of which they were lately members. It now appears that to the importunities of Mr. Martin we have to ascribe the regulations which have completely changed the constitution of the medical department. Before they came into operation, the step of Superintending Surgeon with the comparative rank of Lieutenant-Colonel was attained in the Bombay Presidency in 22 or 23 years, and the average of retiring from the Board on the highest pension with the rank of Brigadier-General was 30 years. The Superintending Surgeoncy is now declared to be a staff appointment, with no higher commission than that of Surgeon—the relative rank of Major, *without the emoluments*, being in lieu assigned to "Senior Surgeons" of 30 years' service. Our claim to promotion by seniority, one of the most firmly established principles of the Company's Service, and one which made it the most desirable for a man without interest to enter, is set aside: the period for retiring on the highest pension is raised from 30 to 38 or 41 years, according to the number of furloughs bad health may have compelled a man to take, 35 years' actual service in India being exacted: pensions according to rank are abolished, though military officers retain all the privileges of the old regulations as well as those of "the Boon:" and the 2d rate of pension (£300.) is given eight years after that of Captain, whereas military officers obtain that of Major (£292.) four years after they have made out their title to that of Captain. The progressive scale of pensions will no doubt tempt men to protract their stay from term to term till they are either summoned to another world, or become entitled to the highest at the age of 63 or 66—the average on arrival not being less than 25. Man's days are limited to threescore years and ten, but according to the rule that every healthy adult will live half the difference between his own age and 81, the expectation of life of Assistant Surgeons on their arrival in India, even with a European tenure of it, is only 28, so that in all human probability we shall have been at least 10 years in our graves when the time comes at which we would if living be entitled to the highest rate of pension. How many years will it be enjoyed by the very, very few (one out of 600 of these who enter the Service, according to Badenack) who live to be entitled to it, and how differently is life in India valued by Insurance Societies, which demand more than double premium?

To a seat at the Medical Board we all look forward, if our lives be spared, as a reward for long and faithful service, for the prizes we can aspire to are scattered with a sparing hand. The Military branch has about 13 per cent. of field officers; that is, every regiment of 23 officers has one Colonel, one Lieut.-Colonel, and one Major, below which latter rank very few indeed have retired since permission was given to accept a bonus for retiring, and that bonus in the

case of Majors seldom falls short of 30,000 rupees in addition to their pension. The Indian Navy, consisting of 138 officers, has also 13 per cent., there being 18 above the rank of Naval Lieutenant. The Medical branch had 4½ per cent., but the former rank of the Superintending Surgeons being now taken away, the whole commissioned Medical Establishment of India, numbering upwards of 800 members, supernumeraries included, has only nine officers holding commissions higher than that of a Captain. In this country relative military rank is assigned not only to the Navy, but to the civil and clerical services, civil servants of four years' standing ranking with Captains, of eight with Majors, of 12 with Lieut.-Colonels, of 20 with Colonels, &c. Medical officers have the rank of Major after 30 ! ! ! They are thus placed at the bottom of the class of gentlemen, and they alone, of all the Company's servants, who in general are sprung from the middle classes at home, acquire by their appointments no elevation of social position till they have been 30 years in India; for the title of Esquire, which is equal to the rank of Captain, is conceded to all medical men in civil life. No medical man has ever had a seat in the India Direction, and to this is to be attributed our humble influence. After the capture of Ghuznee, where honors were showered in profusion on the army of the Indus, Dr. Kennedy, not only the senior superintending surgeon, but the senior in rank of all the staff officers, was not even decorated with the third class of the Doorance Order, though his zeal and talents drew forth the highest compliment. The chief medical officer, and the chief commissariat officer, were named together in terms of equal commendation in the same paragraphs of Sir Charles Napier's despatches after the battles of Meeanee and Hydrabad. The former is unhonoured and unnoticed by Government; the latter is promoted from Captain to Major, and made a Companion of the Bath. Such painful distinctions not only detract from the respect due to the India Medical Officers, but through them derogate from the honor and dignity of the whole profession.

These facts must be well known to Messrs. Annesley and Martin, and yet they advise the abolition of the Medical Board, which, depriving us of the few remaining appointments that give a higher rank than that of Surgeon, would be a blow very little lighter than the one we have already sustained at their instigation. Let us next inquire what is to be gained by such a measure? Instead of three members with good salaries, and a Secretary with a large establishment of Clerks at each Presidency, there would be one Director-General with a large salary, and three Secretaries with small ones. The Secretaries would constitute the Board in the management of all ordinary business, for it is impossible that in the relaxing climate of the Presidencies the health of one man can at all times be equal to such duties as the Board has to perform. The Home Government may say "detur digniori," and resolve that the Director-Generalship shall be given on this principle, but it is probable enough that the Governor-General, even if he relinquish all rights of patronage, and disregard all claims of friendship, may pass over men who from seniority have the best right to preferment, and select one who is by no means the best qualified. This under the new regulations will no doubt be the case with members of the Board and Superintending Surgeons, even if qualifications are considered of any consequence in comparison with interest, which commands every appointment; and injustice will be done to men who entered the service on the faith of the permanency of the system of promotion by seniority. Even if a man of pre-eminent talents and zeal be occasionally selected, it is not likely that, for the five years he can hold office, he will have the interest of the service more at heart than the present members, who at all events are men of average talents and acquirements. Boards have been found most efficient in the management of other affairs, for there is a Government Council Board, a Revenue Board, a Military Board, a Clothing Board, &c., and it is strange that a Board, of which the President, who is now designated Physician-General, is the responsible member, should be

incapable of managing medical affairs. It does not necessarily follow because under such a direction the medical affairs of the Royal Army did not prosper, that the medical service of India requires a Director-General. The Medical Board in London was composed of men who never served beyond the limits of the metropolis. The Boards in India consist of men who have been trained to the superintendence and direction of the medical concerns of the army from the day they entered it, and they have never been convicted of inefficiency. The Lancet, it is true, lately imputed to the Medical Board of Calcutta remissness in not making complete medical and scientific returns, and in consequence accused it of "deplorable incapacity and apathy." The whole charge originating in the wilful ignorance of the Editor of the Lancet, to whom Journals publishing the very reports he bewails the want of had been sent; and Major Tulloch's neglecting to make application in the proper quarter, was fully and clearly refuted in the India Medical Journal for November, 1842.

You have long been looked up to as the highest authority in the profession, and you have ever been the defender of our rights; I would therefore, with all confidence—though your pages have lately been lent to our disparagement, to please one or two dissatisfied, perhaps disappointed individuals—still commit the advocacy of our cause to your hands.

I remain, Sir,
Your most obedient, humble Servant,
ONE OF THE 800.

To DR. JAMES JOHNSON,
Suffolk Place, Pall-mall East, London.

THE KHEESAH, OR INDIAN FLESH GLOVE.

ALTHOUGH the importance of the condition of the Skin to the maintenance of health and the comfort of the individual has been fully demonstrated by the writings of many eminent physiologists and physicians, yet few modes in this country have hitherto been devised either to promote or to regulate its functions. The Skin is not to be looked upon merely as an elastic covering, serving to protect the parts beneath it from injury, and to preserve the symmetry and form of the body; but as ministering to the sense of feeling, and to some of the most important offices of the system. The Skin is different in its degrees of thickness in different parts, and from it issue various peculiar secretions by many, almost innumerable orifices, which admit of the exit of the perspiration from the body. The minuteness of these pores is evident from the exhalation which they give forth, being of so delicate a character as to be discharged in the form of vapour, and thus constituting what is commonly known as the *Insensible Perspiration*. In another state this is condensed, and forms the *Sensible Perspiration*, the secretion of which, is known often to be most profuse and rapid. By means of this secretion, that which is hurtful to the body within, is freely thrown off, and the skin thus constitutes one of the most effectual preservers of the frame in the discharge of irritating and injurious matters. Lymphatic vessels also in great number run upon the surface of the Skin, and imbibe various materials which they convey into the body. The absorbing power of the Skin exists to a very great degree.

Without going into particulars respecting these several functions of the Skin, it will be apparent, that to preserve the surface free from all extraneous substances, to dislodge all concreted matter, collected dust, the deposit of the fatty secretions, &c., it must be of the utmost importance to use those means of ablution, friction, &c., which in countries, where the temperature of the atmosphere is high, are known to be attended with such beneficial results. Frictions not of a *violent*, but of a *gentle* nature, are universally practised by the natives of the East for the purposes above stated, as a substitute for exercise, and means have been adopted by them to effect this purpose in the most perfect manner. The most effectual application resorted to in India is a Glove made of the

BURRUK, or Persian Glove Cloth, called the KHEESAH, or INDIAN FLESH GLOVE, which, at a considerable cost and trouble, Messrs. SAVORY and MOORE are enabled to present to the public. The KHEESAH has been in use from time immemorial in the Empire of Hindustan, Persia, and throughout the East; countries in which the greatest attention has always been paid to the purity, softness, and polish of the Skin.

It is applicable alike to the Bath and the Dressing Room; and, unlike the hair-glove, which in India is used only for rubbing down horses, it rouses the activity of the skin, removes all impurities, and elicits an agreeable and equable action towards the surface, and that without occasioning the smallest discomfort or irritation.

This superior article of comfort, health, and luxury, comes thus recommended to us, not only by the opinion and experience of Tropical Physicians, but through the experience of ages, amongst a people, who of all nations have paid most attention to maintaining the natural functions of the Skin.

The INDIAN FLESH-GLOVE will be found suited to the most delicate, as well as to the coarsest Skins, simply requiring, in the latter instance, a little more power in using the friction;—indeed, so ingeniously is the texture of this Glove framed, that the two sides of it are differently constructed, so as to be adapted to different Skins. It thus possesses unequalled advantages.

136, New Bond Street, and 220, Regent Street, London.

PENNY DOCTORS.

THE aristocratic constitution of the profession does not please some poeple. T. would have it more on the equality principle. We dare say they are right, and as they assure us that things are rapidly, or, at all events, certainly going on that way, we may some of us live to enjoy it. In the interim we cannot but esteem those pioneers of civilization who are ahead of their age, and anticipate the future.

A gentleman of this description, who rejoices in the name of *Funge*, or, perhaps, *Fudge*, has arisen in Cheltenham. His *affiche* speaks for itself. Here it is:—

" *The Cheltenham Penny Medical and Surgical Society, established for the especial Benefit of Servants and Working Classes, and conducted by Mr. W. C. Funge, Surgeon, Apothecary, and Accoucheur, at his residence, No. 2, Buckingham Villas, Wellington Street.—Hours of attendance, daily (Sundays excepted,) mornings, from nine to twelve; evenings, from six to seven.*

" RULES.

" 1. A subscription of one penny per week (to be paid every Monday,) entitles the subscriber to medical and surgical advice, and medicine, so long as the same is paid.

" 2. Subscribers requiring medical or surgical advice, &c., (in all cases that will admit,) to attend upon the surgeon within the hours above specified.

" 3. Subscribers requiring medical or surgical advice, &c., whose case will not admit of attending upon the surgeon, within the hours above specified, to signify the same, that they may be attended to in the ordinary course of visiting (cases of sudden illness excepted,) they being attended to at all hours.

" 4. Subscribers to provide bottles, pots, and bandages, and to send for their medicines.

" Midwifery cases will be charged to subscribers to the above, 10s. 6d. Vaccination included.

" N.B. Mr. Funge has been established in Cheltenham upwards of five years; for three years has held, and still holds, the appointment of surgeon to a very extensive society, and superintends the preparation of all medicines.

" Cheltenham, August, 1843."

Mr. Tapiow, in Chuzzlewit, asks who is Co.? and remarks, that although his name is found in every firm, he never had an opportunity of seeing him. He therefore concludes that himself must be the Co. in his own concern. Mr. Funge acts upon the same idea, in the construction of his Penny Medical and Surgical Society, being not only Mr. Funge himself, but the said Society to boot. Mr. Funge is evidently a great reformer. He belongs to the class of Moses and Sons—they tell you to cut down your tailor's bills—he, your Doctor's. But even Moses has not come to a penny, and there Funge has the start of him. Honour to Funge!

CONTENTS

OF THE

MEDICO-CHIRURGICAL REVIEW,

No. LXXX. APRIL 1, 1844,

[BEING No. XL. OF A DECENNIAL SERIES.]

REVIEWS.

I.

Principles of Medicine: comprising General Pathology and Therapeutics, and a brief General View of Ætiology, Nosology, Semeiology, Diagnosis, and Prognosis. By CHARLES J. B. WILLIAMS, M.D. - - - - - - - 293

II.

A Practical Treatise on the Diseases of the Testis, and of the Spermatic Cord and Scrotum. By T. B. CURLING, Esq. - - - - - - - - - 313

1. Anatomy of the Testis - - - - - - - - - - - 314
2. Diseases of the Testis - - - - - - - - - - - 320
   - A. Congenital Imperfections and Malformations - - - - - 320
   - B. Atrophy of the Testis - - - - - - - - - - 326
   - C. Wasting of the Testis - - - - - - - - - - 327
   - D. Hydrocele - - - - - - - - - - - - 330

III.

The Oculist's Vade Mecum: a Complete Practical System of Ophthalmic Surgery. By JOHN WALKER, Esq. - - - - - - - - - - - - - 341

1. Treatment of Chronic Ophthalmia - - - - - - - 341
2. Congenital Ophthalmia - - - - - - - - - - - 345
3. Strumous Ophthalmia - - - - - - - - - - - 345
4. Pterygium - - - - - - - - - - - - - 346
5. Opacities of the Cornea - - - - - - - - - - 347
6. Operation for Artificial Pupil - - - - - - - - 348
7. Amaurosis - - - - - - - - - - - - - 349

IV.

Remarks on Schools of Instruction for Military and Naval Surgeons, in a Letter to the Right Hon. Sir Robert Peel, Bart. By Sir GEORGE BALLINGALL, M.D. - 355

V.

Medico-Chirurgical Transactions, published by the Royal Medical and Chirurgical Society of London. Second Series, Volume the Eighth. (Concluding notice.) 361

1. A Few Observations on Encysted Hydrocele. By R. Liston, Esq. FRS. 361
2. Statistics of Bethlem Hospital, with Remarks on Insanity. By John Webster, M.D. - - - - - - - - - - - - 364
3. Second Series of Observations on the Pathology of the Ear. By Joseph Toynbee, F.R.S. - - - - - - - - - - - - - 369
4. On the Nature of the Ossification of Encysted Tumours. By John Dalrymple Esq. - - - - - - - - - - - - 372
5. An Account of a Case in which a Foreign Body was lodged in the Right Bronchus. By Sir Benjamin C. Brodie, Bart. - - - - 372
6. Observations on the Medicinal Properties of the Cannabis Sativa of India. By John Clendinning, M.D. - - - - - - - - 376
7. On the Anatomical Characters of some Adventitious Structures, being an Attempt to point out the Relation between the Microscopic Characters and those which are discernible by the Naked Eye. By Thos. Hodgkin, M.D. - - - - - - - - - - - - - 378
8. Some Account of an Epidemic which prevailed at Teheran in the months of January and February, 1842. By C. W. Bell, M.D. - 383

VI.

Essay on the Physiognomy of Serpents. By H. SCHLEGEL. Translated by THOMAS TRAILL, M.D. - - - - - - - - - - - - - - - 385

VII.

PHYSICS AND PHYSIOLOGY.

I. Elements of Natural Philosophy. By GOLDING BIRD, M.D.
II. The Sources of Physical Science. By ALFRED SMEE, F.R.S.
III. Caloric: its Mechanical, Chemical, and Vital Agencies in the Phenomena of Nature. By SAMUEL L. METCALFE, M.D. - 391

VIII.

Report on the Sanatary Condition of the Labouring Population of Great Britain. Supplementary Report on the Results of a Special Inquiry into the Practice of Interments in Towns. By EDWIN CHADWICK, Esq. - 415

IX.

A Manual of Medical Jurisprudence. By ALFRED S. TAYLOR, Esq. - 432

PERISCOPE.

Bibliographical Notices.

1. Observations and Reflections on some rare Varieties of Dislocations. By F. Bouisson - 440
2. Memoir on the Present State of Naval and Military Surgery. (1798) By John Bell - 443
3. Remarks on Gonorrhœa in the Female: on the Transmission of the Inflammation from the Uterus to the Peritoneum by the Fallopian Tubes; and on the Sterility which is the Result. By Dr. Mercier - 451
4. Diseases of the Lungs from Mechanical Causes; and Inquiries into the Condition of the Artisans exposed to the Inhalation of Dust. By G. Calvert Holland, Esq. M.D. - 452
5. Galen on the Hand - 453
6. Mémoire sur l'Emploi du Carbonate d'Ammoniaque dans la Scarlatine, &c. Par le Docteur Rieken - 454
7. On the Parasitic Vegetable Structures found growing in Living Animals. By John Hughes Bennett, M.D. - 456
8. Pathological and Historological Researches on Inflammation of the Nervous Centres. By John Hughes Bennett, M D. - 459
   On the Nature of Softenings of the Nervous Centres - 459
9. Facts and Observations relative to the Influence of Manufactures upon Health and Life. By Daniel Noble, Esq. - 462
10. Observations upon Pneumonia and its Consequences. By Thos. Addison, M.D. 464
11. Minor Surgery, or Hints on the Every-day Duties of the Surgeon. By Henry H. Smith, M.D. - 468

Spirit of the Foreign Periodicals, &c.

1. M. Andral on Pathological Hæmatology - 469
2. Researches on the Transmission of Hydatids by Contagion. By Professor Klencke - 473
3. Exophthalmia from an Hydatid within the Orbit - 478
4. Microscopic Entozoa in the Blood, Stomach, &c. - 478
   Intestinal Entozoa during Digestion - 479
5. Chemical Pathology - 480
6. On the Use of Ptisans in France - 481
7. M. Remak on Menstruation - 484
8. M. Raciborski on the Corpora Lutea - 486
9. Dr. Tessier on Tympanitis and Dropsy of the Uterus - 487
10. On the Good Effects of Opiates in Metorrhagia - 489
11. Professor Otto on the Action of different Medicines on the Mental Faculties 489
12. M. Pigeaux on Diseases of the Heart - 490
13. M. Beau on the Diseases of Old Age - 491
14. Non-injurious Effects of Solitary Imprisonment with Labour - 493
15. New Edition of the Work of Cabanis - 494
16. A Nosological Text-book for the Medical School in Egypt - 496
17. Variations in the Climate of France - 497

18. M. Donné on the Microscopic Examination of the Fluids - - - - - 499
19. The Functions of the Accessory Nerve - - - - - - - - 504
20. Anatomy of the Chinese - - - - - - - - - - - - 505
21. M. Lombard's Remarks on Typhus Fever - - - - - - - 506
22. Philosophical Anatomy - - - - - - - - - - - - 507
23. Analogy between some Monstrosities and the lower Animal Forms - - 507
24. The Process of Secretion - - - - - - - - - - - - 508
25. Fracture of the Base of the Skull from falling on the Feet - - - - 508
26. Case of Elephantiasis or Barbadoes Leg - - - - - - - - 509
27. Leprosy in Sardinia - - - - - - - - - - - - - 509
28. The Valerianate of Zinc—a new Antispasmodic - - - - - - - 510
29. Inoculation of Veratria in Neuralgia - - - - - - - - - 510
30. Nux Vomica in Neuralgia - - - - - - - - - - - 510
31. Utility of Musk in certain Cases of Delirium - - - - - - - 511
32. M. Velpeau on the Use of the Nitrate of Silver in Ophthalmia - - - - 511
33. Tartrate of Antimony in Injuries and Ophthalmia - - - - - - - 512
34. M. Gerdy on Congenital Luxations - - - - - - - - - - 512
35. On the Paralytic Affections of Infancy - - - - - - - - - 512
36. On the Cause of Rabies in the Dog - - - - - - - - - - 513
37. Nævi treated by Inoculation with Croton Oil - - - - - - - 513
38. Chloruretted Lotions in Confluent Variola - - - - - - - - 513
39. German Hydropathic Journal - - - - - - - - - - - 514
40. Urethral Pains relieved by Compression - - - - - - - - - 514
41. Asphyxia induced by an Excessive Quantity of the Amniotic Fluid - - 514
42. Pommade for Chaps and Fissures of the Toes - - - - - - - 515
43. Pharmaceutical Formulæ - - - - - - - - - - - - 515
44. On the Proper Age for Females to Marry - - - - - - - - - 516

Spirit of the British and American Periodicals, &c.

PHYSIOLOGY.

1. On the Circulation of the Blood in Acardiac Fœtuses. By John Houston, M.D. 517
2. On the alleged Infæcundity of Females born Co-Twins with Males; with some Notes on the average Proportion of Marriages without Issue in General Society. By James Y. Simpson, M.D. - - - - - - 519
3. Professor Mulder on the Existence of Oxydes of Protein in the Blood—Physiological Inferences—Theory of Inflammation - - - - - 520
4. Examination of the Question—Is the Chyle Incipient Blood? By John Aldridge, M.D. - - - - - - - - - - - 522
5. On Hermaphroditism. By Robert Knox, M.D. - - - - - 523

PATHOLOGY.

6. A Sketch of the Humoralism of Therapeutic and other Agents, or their Modus Operandi through the Blood. By T. W. King, Esq. - - - - 525
7. Notes on Urinary Diseases. By John Aldridge, M.D. - - - - 528
Liebig's Theory of the Urinary Secretion - - - - - - 528
8. Case of Tubercular Elephantiasis in a Man of English Parentage, born in India. By J. Kinnis, M.D. - - - - - - - - - - - 530
9. On the Statistics of Fever in St. Thomas's Hospital, with reference to Treatment. By H. Burton, M.D. - - - - - - - - - 531
10. On Impending Dissolution and Nervous Affections in Young Infants. By Dr. Doherty - - - - - - - - - - - - 533
11. Remarks on a peculiar Form of Paralysis. By W. P. Buel, M.D. - 536
12. Complicated Menstruation. By W. Detmold, M.D. - - - - 536
13. The Sounds of Auscultation as distinct as the Bell of St. Paul's - 537
14. Aneurysm of the Umbilical Cord - - - - - - - - 538
15. Objections to the Vegetable Origin of Porrigo Decalvans - - - 538
16. Rima Glottidis closed by Warty Vegetations - - - - - - 538
17. The Tetanic Face - - - - - - - - - - - - 539
18. Mr. M'Donnell on "Pulsating Empyema of Necessity" - - - 540
19. Absence of the Rectum - - - - - - - - - - - 531
20. Quarterly Table of the Mortality in 114 of the Districts of England (including the Principal Towns), &c. For the Quarter ending September 30, 1843. 541
21. Summary of the Weekly Tables of the Mortality in the Metropolis for 1843. 543

THERAPEUTICS.

22. Electricity in Cases of Poisoning by Laudanum - - - - 544
23. On the Influence of Opium on the Catamenial Functions. By James M'Cune Smith - - - - - - - - - - 545
24. On the Effects of Opium on the Infant Subject. By John B. Beck, M.D. 545
25. Observations on the Influence of the Climate of Canada in preventing the Development and Stopping the Progress of Phthisical Symptoms. By J. Orton, Esq. - - - - - - - - - - 546
26. On the Effects of Chloride of Zinc and Chloride of Lead in the Treatment of Cancer. By E W. Tuson, F.R.S. - - - - - 547
27. Case of Facial Neuralgia, successfully treated by Aconitine - 548
28. Tanning a Chancre - - - - - - - - 548
29. On Large Doses of the Nitrate of Potass - - - - - 549

PHARMACY AND MEDICAL JURISPRUDENCE.

30. Appearances in an Infant poisoned with Dover's Powder - - 550
31. A new Salt of Mercury and Quina - - - - - - 550
32. Case of Poisoning by the Bichromate of Potash - - - - 551
33. Formula for Precipitated Chalk - - - - - - 551
34. Cochineal in Hooping Cough - - - - - - 552
35. Preservation of Leeches - - - - - - - 552
36. Sale of Spirits of Wine - - - - - - - - 553
37. Confectio Ferri Composita - - - - - - - 553

SURGERY.

38. Cases of Polypus Uteri treated by Ligature, &c. By P. Murphy, M.D. 553
39. Spina Bifida - - - - - - - - - - 555
40. Treatment of Burns by Carbonate of Soda - - - - - 556
41. Blood in the Anterior Chamber of the Eye - - - - - 556
42. On the Treatment of Lateral Curvature of the Spine. By Marshall Hall 556
43. Extirpation of Ovarian Tumours - - - - - - 557
44. Successful Operation for Contraction of the Muscles of the Face - 562
45. Opinions of Sir Benjamin Brodie on different Points of Surgical Practice 564
   1. Chronic Inflammation of Schneiderian Membrane, simulating Nasal Polypus - - - - - - - - - - 564
   2. Abscess in the Tumour - - - - - - - - 564
   3. Fissured Tongue from Dyspepsia and from Mercury - - 565
   4. A peculiar Disease of the Tongue - - - - - 565
   5. The Seton best for Ranula - - - - - - - 566
   6. The Sphincter Muscle of the Anus will relax so as to admit the Hand 566
   7. Hysterical Stones in the Bladder - - - - - 567
   8. Hysterical Needles in the Body - - - - - - 567
   9. How to extract Needles from the Body - - - - - 568
   10. Perform Tracheotomy, when there is a Foreign Body in the Trachea 568
   11. Remove the whole of an Organ affected with Malignant Disease - 569

MISCELLANIES.

1. A Lecture on the Improvement of Medical Education in the United States. By M. Paine, M.D. - - - - - - - - - - 570
2. Medical Schools in England and America - - - - - 572
3. Loss of the Eye-brows and Eyelashes from (supposed) Parasitic Animalcules 573
4. Medical Remuneration in Emigrant Vessels - - - - - 574
5. Leeches good Weather-Gauges - - - - - - 575
6. Apothecaries' Diploma in Paris - - - - - - - 575
7. Simpson's New Instrument for Crushing Calculi in the Bladder - - 576
8. Death from Hydropathic Treatment - - - - - - 577
9. Benzoin Water - - - - - - - - - - 578
10. Charter of the Royal College of Veterinary Surgeons - - - 579
11. Observations on the Trees and Shrubs proper for our proposed National Cemeteries. By R. Dickson, M.D. - - - - - - - 579
12. The late Sir Henry Halford - - - - - - - 580

Extra-Limites.

Indian Medical Service - - - - - - - - 581
Bibliographical Record - - - - - - - 582

THE

Medico-Chirurgical Review,

No. LXXX.

[No. 40 OF A DECENNIAL SERIES.]

JANUARY 1, TO APRIL 1, 1844.

PRINCIPLES OF MEDICINE: COMPRISING GENERAL PATHOLOGY AND THERAPEUTICS, AND A BRIEF GENERAL VIEW OF ÆTIOLOGY, NOSOLOGY, SEMEIOLOGY, DIAGNOSIS, AND PROGNOSIS. BY *Charles J. B. Williams*, M. D. London, 1843.

IT is not a little extraordinary, that whilst the most valuable improvements are being daily made in the preparatory sciences of Anatomy, Physiology, Chemistry, &c., no work has appeared until within the last few years, calculated to point out to the student the bearings of these sciences on practical medicine, and to render the discoveries which have been made in the former applicable to the advancement and improvement of the latter. In fact, we possessed until lately no work which treated fully of those general principles in the nature and treatment of disease, which are really fundamental to practical medicine. And yet what are the objects which the student has in studying anatomy and physiology? is it not for the purpose of making his knowledge of these preliminary sciences fundamental to that of medicine, so that starting from the knowledge of the healthy body, as derived from them, the transition might be easy and intelligible to the study of disease.

By general principles in medicine are to be understood those general truths and doctrines, which have been ascertained and established by the continued observation of attentive minds throughout the entire progress of medicine as a science. The sources whence the principles of medicine should be derived are, 1st, a knowledge of animal structure and function (anatomy and physiology), and 2d, a knowledge of those agents which cause and remove disease. Under the head of principles of medicine are comprised those leading and general facts and doctrines regarding disease and its treatment, which are applicable not merely to individual cases, but to groups or classes of disease. Thus, for instance, there are facts and doctrines, common to all inflammations, to all hæmorrhages, and to all dropsies. By combining these generalities into one comprehensive principle, we help the memory, and avoid needless repetitions. This branch of medicine is called General Pathology. An acquaintance with

these principles will enable the student to see with intelligence—to read, understand and interpret the book of Nature, when it is laid before him; it will, in fact, accomplish that which is the ultimate end and aim of all our preparatory studies in medicine ; it will qualify him for practising his art with credit to himself, and benefit to his patient.

It may appear strange, and yet it is not the less true, that different writers on the subject of General Pathology differ widely from each other as to that which should constitute this branch of medical science. Some have treated the subject as if it were identical with semeiology, or that department which treats of the phenomena of disease ; some have made it to consist almost entirely of scraps of pathological anatomy, whilst others again, from their horror of systematizing and of introducing hypotheses and groundless conjectures into medicine, have altogether banished from their treatises on the subject any thing at all bordering on the process of induction, and have made what they call general pathology to consist of stale truisms and unconnected aphorisms. There are some who will have it that General Pathology should serve as a complement to Special Pathology, precisely as General Anatomy does to Special or Descriptive Anatomy. If by this we are to understand that the study of General Pathology is to follow that of Special Pathology, we must express our most unqualified dissent. In commencing our study of disease with that of General Pathology, we commence with that which is the more elementary, and consequently the more simple, and, having thus acquired a knowledge of the elements of disease, we are prepared to encounter the study of it in its more complex form. The many advantages of proceeding in this way over the method of studying special pathology and nosology, as is the usual practice, will appear evident, by our contrasting a student educated in general principles with the nosological student, when they are severally brought to the bed-side of a patient. The latter comes to the patient, crammed with the nosological definitions of diseases current in the schools. In some well-marked and fully-developed acute cases, where he cannot mistake, he may go on very well ; but, in the more ordinary description of cases, in their early stages and endless variations, the phenomena do not correspond with any of his definitions ; they frequently change their character in a manner altogether unaccountable to him ; he is puzzled, his diagnosis fails him, his prognosis is proved wrong ; thus disappointed in the failure of his nosological learning, he mistrusts it every day more and more, and at length falls into a routine of empirical practice. Let us now consider the pathological student. He has learnt to trace symptoms to their causes. He meets, we will suppose, a patient, who complains of violent headache and giddiness ; having been taught by anatomy the peculiarities of the circulation in the head—and by physiology confirmed by clinical observation, that the circulation may be similarly impeded by opposite causes, inanition as well as fullness—he is prepared to find out, through other symptoms, which is the cause of the headache in the case before him—and he adapts his remedies accordingly. Again, we will suppose a patient to present himself labouring under ascites ; the nosological practitioner, who has been accustomed to treat symptoms, looks no farther than the ascites, and sets about treating his patient by purgatives and diuretics, and too often ineffectually ; whilst the man well acquainted with

the principles of General Pathology traces the collections of water (symptom) to its cause, (some organic lesion.) His pathology has taught him that ascites may depend on a variety of organic lesions; that it is sometimes referrible for its cause to disease of the heart or lungs, to disease of the liver or of the peritoneum itself, to disease of the kidneys, or to a depraved state of the blood. He then sets himself to find out by other symptoms which of these organs is at fault, and having ascertained it, he applies his remedies according to the nature of the case. Hence it is evident that the student should be constantly reminded that the practice of medicine is the useful application of all his previously-acquired knowledge. And yet how are we to account for the extreme reluctance and irksomeness, which students in general feel in prosecuting the study of practical medicine? The author thinks, and we fully concur with him, that it is to be attributed in a great measure to the manner in which this branch is generally taught. Instead of making the previously-acquired knowledge of anatomy and physiology fundamental to that of medicine, the usual course adopted by Lecturers is to plunge at once into the mazy thickets of inflammation and fever—subjects so complicated, so different from any thing taught by previous study, that anatomy and physiology afford but little help. This plan of proceeding is aptly compared by the author to a person beginning the study of mechanics with the steam-engine; or to the student of chemistry commencing with organic matter. The general result is, that where any distinct notion of disease is acquired by this injudicious course of proceeding, it is one not at all founded on previous physiological knowledge, but is a new idea altogether of disease, as an obsolute, separate, independent thing—not a mere condition of altered function or structure, but some real being, whose character and history are to be detailed like that of a plant or an animal. The teacher of practical medicine should always keep in view the observation made by Herm. Boerhaave, in his *Inst. med. Docenti procedendum est a generalibus ad Singularia quæque.*

Without the connecting link of general pathology, practical medicine derives little or no aid from anatomy or physiology. Instead of being founded on them, it is studied and practised quite independent of a full knowledge of them, and is generally acquired in proportion as they are forgotten. This kind of practical medicine is much the same as that of old women and nurses; it consists chiefly of treating symptoms, or groups of symptoms, as may have been found useful in similar cases, without the trouble of enquiring after the causes of the symptoms or the seat of the disease. One of the great advantages of an acquaintance with general pathology is, that it furnishes the student *in limine*, at the very outset of his clinical career, with that sort of knowledge, which the mere symptom-treating practitioner has acquired, and that very imperfectly, after years of observation and experience. Sound principles of medicine are, in fact, the embodiment of the result of experience in disease, with a knowledge of structure and function in health. It is well observed by our author, that one of the greatest proof of the practical utility of general pathology is the aid which it gives in the practice of clinical medicine. In fact, the leading rules of practice, those which guide the most experienced men, (although many are not aware of it,) are founded on general views of

diseased function and structure, that is, General Pathology. Practical men, no matter how imperfect their education may have been, do not treat a disease by its name. They really act more on general ideas of disease than on their knowledge of any particular disease. Hence it will appear how important it is that those general views which are so practical, and so extensive in their application, should be well-founded and carefully studied, and that the leading doctrines of disease, should not be left to be picked up irregularly, from casual retrospects of study or experience, when they may be learned during the preparatory course of Clinical Education, as the very ground-work of practical knowledge. We cannot conclude these remarks, prefatory to our analysis of Dr. William's work, more appropriately than by quoting the following passage from Dr. M. Hall, *On the Mutual Relations between Anatomy, Physiology, Pathology, and Therapeutics.* "Every day Physiology becomes a more certain science, and more a science of phenomena and principles. Theory is taking the place of hypothesis, experiment and observation of conjecture. Every day, too, the bond which unites the science of physiology with the practice of medicine is drawn tighter. The public as well as the profession must be enlightened on these subjects. We shall then see empiricism disappear, while ignorance and mystery in medicine are dispelled together. There are no quacks among the engineers, because every one knows that an engine must be understood by him who would repair it. When this truth obtains with regard to medicine, then and not till then, will that most complicated of machines, the human frame, cease to be confided, in the derangements of its functions, or the diseases of its structure, to any one who is ignorant of the many springs of its action and principles of its composition."

We now proceed to our more immediate task—that of presenting an analytical view of the subjects treated in this work. The first Chapter treats of *Ætiology*, or the causes of diseases. This part of the work we shall pass over, there being nothing in it very particular, and shall proceed to an analysis of the Second Chapter, which commences with Pathology proper, or *Pathogeny.*

Chap. II.—This chapter commences with the consideration of Pathology proper, scil. the nature and constitution of diseases. Disease is defined to be a change from the natural condition of the function and structure of the body; now, as the functions or structure are compound, it is obvious that we cannot obtain an accurate knowledge of the disease, until we have obtained that of the several elementary functions or structures affected. The pathologist should follow the example set him by the anatomist, physiologist, and chemist; he should study the consituent parts or *elements*, in disease, before he can understand their combinations —and yet how differently do men usually proceed in the study of pathology! they usually commence with the complex subjects of inflammation and of fever, before they have made themselves acquainted with the elementary properties of textures, or even of vessels. We have the healthy and diseased *primary or ultimate elements of structure*—muscular fibre, nervous matter, vascular fibre, and the elementary tissues of membranes, glands, &c.; as also the *primary elements*, healthy and diseased, of *function*

of these same structures,—irritability, tonicity, nervous properties, the power of secretion and nutrition; and, lastly, the constituents of the blood; we have also the *secondary* or *proximate elements* of disease; the different states of the blood-vessels, scil. anæmia, plethora, congestion, determination of blood, and inflammation; the different functions of the nervous system, sensation, volition, reflected excitement, sympathy and irritation; the secreting organs and membranes, with their relations to the vessels, the nerves, &c.; and, lastly, the elements of structural diseases. Such are the especial subjects of general pathology. Having now divided the elements of disease into primary or ultimate, and proximate, our author proceeds to the distinct and separate consideration of each, commencing with the primary elements of functional or dynamic diseases. Among the primary elements he first notices irritability, or the property of contracting on the application of a stimulus. This, Dr. Williams coincides with Haller, in considering a property of muscular fibre. The property may become excessive, constituting spasm or convulsion. Such excess may manifest itself in three ways:—1, by excessive strength; 2, by inordinate quickness; and, 3, by the unusual duration of the contractions. Excessive strength is exemplified in the violent action of the heart in excitement; or in the great muscular power of a delirious patient. It may arise from excessive stimulus; or from muscles being over-fed with blood. Inordinate quickness of contraction constitutes mobility of muscle, and frequently co-exists with want of power in the contractions—it is exemplified in the irritable heart; in the quick nervous movements of irritable persons—in irritable bowels, and irritable bladder. The pathological cause appears to be either an undue flow of blood to the muscles; or an irregular distribution of nervous influence. The most remarkable instances are given in *convulsions* or *clonic spasms*—as in chorea, epilepsy, and convulsive hysteria. An inordinate duration of muscular contraction constitutes *tonic spasm*, or *cramp*, in which the contraction does not alternate with relaxation. The extreme example of this is tetanus. The chief remedies for these affections are blood-letting, revellents, narcotics, and antispasmodics.

Having thus considered muscular contractility in excess, the author next considers it in its state of deficiency. This state may be occasioned by over-exertion—want of due supply of blood—sedative poisons. These agents, when carried to an extreme degree, cause paralysis, or complete loss of irritability. Muscular irritability may be deficient in readiness to contract—this is exemplified by the sluggish movements of persons who have taken opium, and in the slow pulse caused by digitalis. Though muscular irritability may probably not be *derived* from the nervous system, it is evidently very much under its influence. The nerves are the proper medium by which the voluntary muscles act, as well as the involuntary. The remedies for defective irritability must vary with its cause; stimulants—electricity, &c. are the principal. We next come to Tonicity, or tone, by which is meant a tendency to slow, moderate contraction, not necessarily terminating in relaxation; a property which keeps the parts in a certain degree of tension. To a certain extent tonicity is affected by the same agents which excite irritability; temperature, however, seems to affect them differently. Tonicity may be excessive or defi

cient. Where it is excessive, the muscles are very firm—pulse strong, tense, and often slow—capillary circulation active—from the tense state of the vessels and skin, the several secretions are much diminished—this state leads to local congestion, active hæmorrhage or inflammation, apoplexy or gout. The remedies are relaxants—warm bathing—exercise—sudorifics—aperients, &c.

Defective tonicity is characterised by flabby muscles, incapable of much exertion. Heart is irritable—pulse soft and unsteady—it is frequently retarded. Want of tone in the stomach and intestines causes indigestion and constipation—the secretions also are scanty, depraved, or profuse and watery. A person, thus affected, has little power to resist the influence of depressing agents. The remedies for such a state are obviously those of a tonic character; among which may be mentioned the judicious application of cold.

Our attention is now directed to the properties of the nerves—and first, to the modifications of *Sensibility*—these modifications may depend either on disease of the centre, producing disorder of general sensibility, or on disease of one or more nerves, causing disorder of local sensibility. The diseases of general sensibility may consist in *excess*—*defect*—or *perversion*. Excessive sensibility is more or less present in the early stages of inflammation of the nervous centres. This excessive sensibility, however, is congenital in some persons. Such over-sensibility is generally conjoined with excess of irritability and want of tone. Other nervous functions, also, as sympathy and reflex action, are also often augmented or disordered. The pathological cause of increased general sensibility is probably an undue supply of blood to the posterior columns of the spinal marrow, and the parts of the cerebral mass concerned in sensation. We entirely coincide with Dr. Williams in his opinion, that the luxurious habits of the upper classes, with more excitement for the mind than for the body, and for the feelings than for the understanding, are well adapted to foster morbid sensibility. The remedial measures suited to the removal of this element of disease, are narcotics and anodynes—where it depends on vascular excitement of the nervous centres, the antiphlogistic treatment is most beneficial. Where excessive sensibility is accompanied with general debility, weak and slow pulse, and absence of heat of skin, country air, &c. in fact, general and strict attention to dietetics, are most to be recommended.

Defective general sensibility, in its extreme degree, is exemplified in coma from impeded circulation in the nervous centre, arising from pressure, or in consequence of narcotism. It may also arise from the blood becoming impure from the retention of excrementitious matters, as in suppression of urine. Persons so affected have but little irritability, and are remarkable for being exempt from many diseases, whilst they are very liable to others, such as depend on a plethoric state of the system. The remedies applicable in such a state depend on the cause—when it arises from plethora, depletion and derivation are indicated. After considering diseases of voluntary power, general and partial, our author proceeds to Diseases of Reflected and Sympathetic Nervous Influence.

According to the discoveries of Dr. Marshall Hall, the contractions of all the sphincters, of the œsophagus, glottis, &c. the regular action of the

respiratory muscles seem to be sustained, independently of the will, by a nervous influence, conveyed by afferent nerves from the respective parts to the spinal marrow, and reflected from it through the afferent nerves to the muscles connected with these parts. Alterations in this nervous property oftentimes become elements of several diseases. We have instances of the *increase of this involuntary excito-motory power* in spasm of the throat, and sometimes of the sphincters, in certain nervous diseases, as tetanus and some hysterical affections. The hurried respiration, convulsive cough, violent retching, and hiccup, presented in many nervous diseases, may be, in part at least, traced to an undue influence of the excito-motory nerves of organic life. A similar exaltation of this function is exemplified in the voluntary muscles, when they are deprived of sensation and voluntary motion by disease in the brain. Thus, in paraplegia from disease in the upper part of the spine, the excito-motory power of the nerves of the lower extremities is exalted, and tickling, or mere touching the soles of the feet or legs, will produce convulsive motions, though all voluntary power or sensation be lost. Under the same head we may consider convulsions, which must be referred to an irritation of the true spinal system. This irritation may be *centric*, as in epileptic and apoplectic convulsions from disease in the head, and those from loss of blood; in which cases, the spinal and prolonged medulla being excited, the excito-motory influence radiates to the limbs and muscles generally; or it may be *excentric*, commencing at the extremities of some afferent nerve, which transfers it to the spinal centre, whence it is again reflected. Such are the convulsions arising from teething, uterine, intestinal, or renal irritation. *Partial spasms* caused by *reflected irritation* are exemplified in cramp in the legs from acrid matter in the colon, in diarrhœa and cholera; retraction of the testicle from calculus or inflammation of the kidney, &c.; also in sneezing from irritation of the nerves, coughing from irritation of the glottis, retching from irritation of the fauces. Striking instances of reflected irritation are displayed in the involuntary muscles, the heart, and muscular fibres of the air-tubes and intestinal canal. Thus irritation in the stomach, intestines, or other viscera will cause irregular action of the heart. Spasm of the intestines in colic is brought on by reflex irritation from acrid matter in them. Intestinal irritation may also induce spasm of the bronchi. With respect to the causes of this excitement, it is sometimes referrible to an increased flow of blood through the spinal cord or its nerves, sometimes to mechanical irritation of the cord or its nerves, from the effect of tumors and spicula of bone in the cord, head, or in the course of the nerves—traumatic tetanus exhibits this nervous irritation in a frightful manner—accumulation by rest, also, will cause an increase of this property—the same effect may be produced by sedentary habits. *Defect* of the reflex power is exemplified in paralysis affecting the sphincters, eyelids, muscles of respiration, &c. When this becomes general, the result is fatal, because the respiration, deglutition, and other actions essential to life suffer. Hence it is, that apoplectic coma and narcotism prove fatal. Involuntary voiding the urine and fæces, and the breathing becoming irregular and gasping are indicative of a failure of the reflex power. With respect to remedial measures, when excessive reflex action depends on inflammation or congestion of the cord, the means to be employed are

obvious. When the irritation is purely nervous, as in tetanus, or hydrophobia, sedatives are indicated, such as hydrocyanic acid, Indian hemp, resin, &c. Stimulant antispasmodics, more especially in weak subjects, and in the absence of inflammation, are found to act as sedatives on the spinal-nerves. Not only motions, but sensations also may be reflected. Thus, touching the external auditory meatus causes a tickling sensation in the glottis. Congestion of the liver is sometimes accompanied by pain in the right shoulder-blade. In such cases the sensations are to be referred to an influence reflected probably from the spinal centre. Severe frontal headache may be occasioned by acrid ingesta.

We next come to the subject of the *Diseases of Secretion*. Variations in the process of secretion are oftentimes referrible to changes in the supply of blood sent to the secreting organ. The quantity or quality of the secretion will also depend on the quantity or quality of the blood. Affections of the nervous system, as also of the mind, may affect the process of secretion; mental agitation will produce diarrhœa—nervous excitement will occasion a large flow of limpid urine. The secretions may be excessive, defective, or perverted. Excessive secretion may have the effect of weakening the system by the drain it causes from the mass of blood—each secretion also may have peculiar effects, connected with its office and composition; these effects may be *forwards*, on the parts to which the secretion goes, and *backwards*, on the organ and the blood from which it is formed. The *forward* effects of an excessive secretion of bile depend on its stimulating properties. By irritating the intestinal tube it causes diarrhœa—an excessive secretion of mucus in the bronchi may occasion dyspnœa and cough. Excessive secretions of secreting organs may amount to a flux; whilst those from enclosed serous surfaces or cellular tissue constitute the various forms of dropsy. The *backward* effects of excessive secretion may be referrible to the *organ* and also to the *blood*—the effect on the organ will be that it may become torpid. Excessive secretion, if abounding in animal matter, may reduce the mass, and change the composition of the blood. The excessive secretion of bile or urine modifies the blood. In the case of the latter, a predominance of hydrogen and carbon would be left in the blood, whilst the excessive secretion of bile would leave a predominance of azote. The *remedies* of excessive secretion will depend on the cause—if it arise from determination of blood, depletion, derivation and evacuation must be employed—in such cases the excessive secretion should not be too hastily checked, as it may be a natural means of relief. Where the excessive secretion arises from nervous or other sources of irritation, it must be checked by means which act as general tonics or astringents, and by such also as act only on particular organs. Great advantage will also be derived from means which increase other secretions, by which means the balance may be restored. *Defective Secretion* of any natural or habitual discharge may cause plethora, which will be general, if the secretion be copious, and local, if it be inconsiderable. The morbid effects of defective secretion may be *forwards*, and *backwards*, as in the case of excessive secretion. With respect to the *backward* effects, for instance, of sudden suppression of urine or bile, typhoid symptoms are observed to follow it, as also extreme depression and coma, which soon end in death. The excretions are defective in many idiopathic and symp-

tomatic fevers, and several of the constitutional effects of these fevers are due to this circumstance. The remedies for defective secretion are to be regulated by the cause—where inflammation or congestion exists, depletion and derivation are indicated—where there is a defective supply of blood, stimulants may help to restore the secretions. When the first disorder is in the secreting structure itself, the defect may be removed by agents which specifically augment the secretion. Thus mercury will increase the secretion of the liver; the various diuretics that of the kidneys, purgatives that of the intestines.

Perverted secretion often accompanies excess and defect of this process. Thus, in fevers, the secretions are altered as well as diminished. The quality of the urine often becomes much changed—full living and stimulating beverages will render it strong and acid; whilst low diet, great fatigue of body or mind, and chronic inflammation of the kidney, generally make it pale and alkaline. Generally speaking the remedies for perverted secretions are likewise those which increase the secretion. Where the perversion depends on altered circulation in the part, the use of tonics is indicated. Our author having now considered the vital properties of the elementary solids in their pathological relations, now considers the elementary changes of the blood in disease. The blood consists of red particles, colourless globules, and liquor sanguinis, or, the latter being itself compound, the following may be set down as its composition. 1. Red particles. 2. Fibrin and colourless globules. 3. Albumen and other animal matter. 4. Oil. 5. Salts, and 6. Water. These elements may be present in excess, defect, and in a state of change.

Red Particles.—The red blood-discs are considered to be the part of the blood on which its vivifying properties chiefly depend. Their excess may therefore be supposed to cause general excitement of the vital properties of the system—they exist in large proportion in persons of a sanguine temperament—and more in males than in females. Andral and Gavarret detected an excess in the early stage of inflammations and fevers. The red particles are *defective* in persons of the lymphatic temperament; after great losses of blood—in chlorosis and other anæmic states—in scrofulous and tubercular diseases—in the latter periods of fever—in granular degeneration of the kidneys attended with dropsy. The signs of the defect are, as might be expected, paleness of parts naturally coloured with blood and sallow hue of the skin. The red particles are changed in some diseases, the colouring matter being much darker than usual, as in the worst forms of scurvy—in some malignant fevers it has been described as being pitchy black. In congestive typhoid fevers there appears to be an unnatural solution of the red particles. The black matter of melanosis seems to be the colouring part of the blood in an altered state. When the red particles are in *excess*, the most effectual *remedy* is blood-letting—low diet also will assist;—where the red particles are *deficient*, animal diet, exposure to air and light, with tonics generally; and more especially the preparations of iron.

Fibrin.—The fibrin is the part which causes the coagulation of the blood, and constitutes the buffy coat and coagulable lymph. It is deficient in new-born animals, but abundant in children, and in well-fed persons. An *excess* of fibrin and of the colourless or lymph globules, exists in

inflammatory diseases, especially those of a sthenic character, and in acute rheumatism. *Defect of fibrin* is indicated by imperfect coagulation of the blood when drawn. Venous blood contains less fibrin than arterial. Great bodily fatigue and want of sleep expend the fibrin. In some instances the blood is found fluid in cases of death from poisoning and other sudden causes. In adynamic fevers, also, the blood is fluid and imperfectly coagulable. A defect of fibrin causes a tendency to hæmorrhages, generally of an asthenic kind. In such cases, wounds do not readily heal, nor fractures unite. The author observes that a certain spissitude in the blood is favorable to its transit through the hydraulic apparatus of the circulation; and that when this is deficient, various irregularities in the distribution of the blood may occur.

Our author now passes in review the important morbid appearances presented by the buffy coat and contraction of the clot of blood. For valuable information on these several points we must refer to the original. We now pass on to the *Changes in the Blood by Respiration*. The conversion of venous into arterial blood comprises the absorption of oxygen, the removal of some carbonic acid, a slight increase of fibrin, &c. Each part of this process is probably concerned in fitting arterial blood for its function; the absorbed oxygen, by its affinity for the hydrogen and carbon of the blood and textures, aiding in those processes by which these are renovated in function as well as in structure and heat is evolved: the renewal of fibrin supplying the expenditure of the plasma; and the removal of the carbonic acid being the excretion of a noxious matter.

Defect of the change of the blood by respiration is an important element in disease, and constitutes a prominent feature of affections of the respiratory apparatus. This constitutes the essence of *asphyxia* or *apnœa*. The mischief arising from defective respiration varies according to the sudden or gradual supervention of the defect. Persons affected with extensive emphysema of the lungs are habituated to an imperfect state of respiration, as evidenced by a constant lividity of the lips and cheeks—such an appearance would be a sign of death in other persons. The chief cause of this difference lies in the fact, that the importance of the respiratory function varies under different circumstances. When the muscular parts of the body are in full activity, more breath is needed to remove from the blood the noxious effete matter, which always results from great exercise. In such a state the respiratory process cannot be abridged without serious disorder. The phenomena of asphyxia are compounded of—1, accumulation of blood in the venous system; 2, diminution of blood in the arterial system; and 3, deficiency of oxygen and excess of carbonic acid in the blood. These several conditions injure the vital functions, both by the want of a due supply of blood, and by the bad quality of that blood, which is injurious,—negatively for want of oxygen, and positively from its excess of carbonic acid and other excrementitious matters which are sedative. The symptoms induced are also of two classes—1, those implying failure of function, such as muscular debility, feeble action of the heart, coldness of the surface and extremities, and abolition of the senses and mental faculties; 2, those arising from congestion and the noxious influence of the black blood, such as palpitation, flashes in the eyes, noises in the ears, delirium, muscular spasms, &c. There is another mode in

which the changes by respiration may become defective, that occuring gradually, or when the functions are not active. This may be seen when the defect is congenital, as in malformation of the heart, causing cyanosis, in which case some venous blood passes into the arteries—it is also seen where the defect is very gradually induced, as in emphysema of the lungs. The chief indication here, is to restore the respiratory function, where it is defective. The injurious effect of defective respiration may be diminished by lowering the activity of the functions—by enjoining complete rest of both body and mind—by warmth to the surface and extremities whilst air is supplied cool and fresh to the face and air-passages—by sedatives which reduce the circulation and other functions to a lower standard. In extreme cases, stimulants, may be required for the enfeebled circulation, and depletion to remove the engorgement of the venous system.

We shall now pass on to the *secondary or proixmate elements of disease.* The class of *proximate* elements which have been most generally studied as the subjects of general pathology, are those affecting the circulation of the blood. The morbid conditions connected with *defect* and *excess of blood* in the vessels, come now to be considered under the divisions of *general* and *partial*, and as attended with an increase or diminution of the irritability and tone of the moving fibre. *Anæmia*, or, as it is sometimes called. *oligæmia*, is the name given to that condition of the system characterised by *deficiency of the blood.* It is often symptomatic of other diseases, but sometimes occurs without any other known disease. The general symptoms of anæmia, are general muscular weakness; weakness of the heart, as is shewn by the pulse; feebleness of the whole circulation, manifest in the coldness of the extremities; weakness in the organic functions, shewn by loss of appetite, indigestion, torpor of the bowels, scanty and disordered secretions, defective nutrition, and imperfect sanguification. The physical signs of anæmia are: paleness of the surface, as also of the lips, gums, and tongue. In the course of the larger veins, especially the jugulars in the neck, the thin blood running with great rapidity in the ill-filled vessels, is often thrown into sonorousness, vibrations (venous murmurs) sometimes sensible to the finger placed lightly on the vein. The blood, when drawn, is very thin and watery, it coagulates readily, and forms a very small contracted clot, generally covered with a buffy coat. Andral considers this appearance due to a predominance of the fibrin over the red particles. The albumen is often scantier than usual, chiefly in those cases attended with dropsy. Anæmia is not unfrequently accompanied by symptoms indicating irritation or exaltation of function. Some of these arise indirectly from weakness, as pain, nausea, colic, and diarrhœa, traceable to weakness of digestion. Various properties of the nervous system are sometimes exalted; sensibility is acute; intolerance of light and sound, with flashes in the eyes, noise in the ears, a sense of rushing in the head, and various neuralgic pains. The excito-motory nerves are also sometimes excited, and spasms or convulsive affections may be present, or the organic functions may be affected, and palpitation, spasmodic asthma, vomiting, &c. occur. Thus the functions sometimes excited in the midst of general depression and weakness, are those of the nervous centres. Dr. Williams attempts to account for this by the pecu-

liar distribution of the circulation through the nervous centres. When the blood is reduced in quantity, the blood-vessels, by reason of their tonicity, contract in proportion. But the vessels within the scull and spinal canal cannot contract with the same facility; for not being subjected to atmospheric pressure, they do not shrink as the blood becomes reduced, and therefore they retain more than their due share of the circulating fluid. This disproportionate amount of blood in the nervous centres produces different effects, according to the degree in which the heart's propulsive power reaches it. Under the influence of excitement, the brain and spinal cord receive, through their uncontracted vessels, an unusual share of the force from the heart; hence arises an erethism of some one or other of the functions of these parts; this occasions pain, spasm, sensorial disturbance, or sympathetic irritations of some kind or other. On the other hand, if the heart's action is weak, the blood may stagnate in the vessels of the brain, and produce symptoms of congestion there. Hence head-ache and giddiness, drowsiness, impaired mental faculties, and, in extreme cases, coma or catalepsy. In such cases the blood is accumulated in the veins and sinuses of the brain—even a coagulation of the blood may take place in the sinuses. Dropsical effusion into the cellular texture is a common result of anæmia, when either long-continued, or aggravated by other causes, disturbing the circulation. The exciting causes of anæmia are the various circumstances which abstract blood from the system, or prevent its healthy formation. Irregularity of the uterine function is, however, one of the commonest causes. The *remedial measures* for anæmia are soon told—a nourishing diet—tonics suited to the particular case—exposure to pure air and to light. With respect to tonics, iron holds the very first place; the best form, according to Dr. Williams, is the iodide of iron, in solution with syrup. Where iron disagrees, milder tonics, as calumbo and other bitters, with mineral acids, answer better at first. After excessive losses of blood, sulphate of quinine may be given with the iron.

We now come to the consideration of *Hyperæmia*, which is an extremely frequent element of disease. This state implies undue distention of the containing vessels; with respect to the vital properties of these vessels, and of the heart, scil. tonicity and irritability, hyperæmia has been divided into active or sthenic, and passive or asthenic. Hyperæmia may be either general or local. General hyperæmia may arise either from too much blood being made, or too little being expended. In either case the blood accumulates and fills the heart and blood-vessels inordinately. The causes inducing plethora are the very reverse of those which cause anæmia. Besides the ordinary causes, the dimunition of an habitual excretion or loss of blood, the drying up of an old sore or issue, or the loss of a limb, may occasion this state.

The division of plethora into *sthenic* and *asthenic* is founded on different proportions of the strength and irritability of the moving fibre. Sthenic plethora is that which commonly affects the young, the active, and those of a sanguine temperament. The tendency is to cause general febrile excitement, active hæmorrhages, fluxes and inflammations. In asthenic plethora there is in general want of contractility and tone in the moving fibre. The heart, instead of being excited, is oppressed by the increased quantity of blood. Its functions, in general, are sluggish and imperfectly

carried on. This form of plethora affects more especially those weakened by age, excesses, or previous disease, and those in whom the excreting organs act imperfectly. Asthenic plethora tends to produce congestions and passive hæmorrhages, and fluxes or dropsies; and also dilatation of the heart, enlarged liver, varicose veins, &c. Congestion of the brain with apoplexy or palsy, is sometimes produced.

Remedies.—These consist chiefly in blood-letting, and other evacuants, with abstinence. After blood-letting the pulse becomes softer, weaker, and less frequent in the *sthenic* kind; whilst in the *asthenic*, if often improves in strength and regularity, and sometimes rises to its natural frequency. The secretions must be duly attended to in both kinds of plethora. In the *sthenic* form, sedative and relaxing remedies are also indicated. In *asthenic* plethora, the use of tonics should be combined with blood-letting. The continued use of alterative aperients and diuretics, with taraxacum, nitric acid, iodide of potassium, &c. may prepare the way for the employment of tonics.

We now pass on to *Local Hyperæmia*, with diminished motion, or, in other words, *congestion*, which the author defines to be excess of blood in the vessels of a part, with diminished motion of that blood. Blood-vessels become congested or unduly dilated, when their property, elasticity, or tone is overcome. The chief causes of congestion may be classed under these two heads: 1. *Those of venous obstruction*; and 2, *those of atony of the vessels* (capillaries and veins.) Instances of congestion from venous obstruction are of frequent occurrence, both externally and internally. When the arm is tied for venæsection, congestion is produced. Congestion of brain may be produced by a tumor of pressing on the jugular veins. Disease of the valves of the heart, which prevents the blood from passing onwards through it, produces fulness of the veins and of the capillaries in both the pulmonic and systemic circulation. Obstruction to the transit of blood through the liver causes congestion in the abdomen, hæmorrhoids, &c. Emphysema of the lungs, in which the efforts of expiration predominate over those of inspiration, occasions congestions not merely by opposing the return of blood through the veins into the chest, but also by removing that suction influence, which naturally promotes the flow of blood in that direction at each inspiration. It is now known that the circulation in the liver is, in health, much dependent on this influence; the diminution of this influence by extensive vesicular emphysema will assist in explaining why hepatic congestion is so commonly combined with this pulmonary lesion.

Congestion from Atony of the Vessels.—Sometimes the atony of the vessels is general, being caused by extreme debility from any cause—the blood thus accumulates in some of the vessels, chiefly those that are lowest in the position of the body. In other cases the weakness is local, and is produced by *over-distention*. Over-excitement of the vessels is another cause of congestion. Thus, after a part has been inflamed, the vessels often remain dilated. Congestion occurs in various organs and surfaces, when their proper secretions are arrested, or suddenly diminished. It is not easy to determine whether the congestion is the effect or the cause of the defective secretion in the first instance; very probably the relation is mutual. Atony of the small vessels has now been considered as a chief cause of

congestion, not only by making them yield, and become distended by the accumulation of blood, but also by rendering them unfit to transmit the force of the current in its proper direction. Vessels, after losing their tone, become inelastic and tortuous, and, by the very stagnancy of the blood in them, they oppose an increasing obstacle to its passage through them. The physical principle here referred to, the author illustrates by some experiments. These experiments, according to the author, serve to illustrate a principle that is too little considered in animal and general physics: the *loss or neutralization of force by misdirection*. The blood-vessels, in their healthy condition, are so constituted as to make the most of the heart's propulsive power and transfer it throughout their whole length; but when dilated, tortuous, flaccid and otherwise altered, they misdirect and exhaust it.

Symptoms and effects of Congestion.—Simple congestion generally impairs the vital properties of internal organs. Natural contractility and sensibility are lowered, but pain, spasm, and morbid sympathies are frequently excited. Thus congestion of the liver is sometimes accompanied with pain or tenderness; sometimes it is without either. Congestion of the stomach sometimes causes gastralgia, nausea, vomiting and altered appetite; yet these symptoms are often absent. The same remark is applicable to other organs. The natural secretions from congested parts are at first augmented, as in congestion of the conjunctiva; but generally they are diminished, as bronchial congestion (dry catarrh), and congestion of the liver, kidneys, &c. Congestion often leads to an increased transudation from the whole distended capillaries, causing effusion of the watery and saline parts of the blood, as is seen in the fluids of fluxes and dropsies. The process by which this is the effect of congestion or secretion seems to be chiefly a physical one. Thus the more essential effect of congestion is to impair the natural secretion. The distention of the more congested capillaries sometimes leads to a general exhalation of their more watery contents, which, mingling with the natural secretion, render it watery and sometimes albuminous. Thus congestion of the intestines may produce diarrhœa; congestion of the kidneys, watery and sometimes albuminous urine; congestion of the lungs and pleura, hydrothorax; of the heart, hydropericardium; of the abdomen, ascites, &c. The element of congestion chiefly concerned in producing these effusions is distention of the vessels. These effusions more usually result from congestions occasioned by venous obstruction, especially when these occur suddenly, the vigour of the circulation not being impaired. It may be well to mention that, besides distention of the vessels, the state of the blood considerably influences the result. Where the blood is poor, the watery parts easily pass from congested vessels, and contain but little albumen. But if the blood is rich, abounding in proteine compounds, more pressure is required. Fluxes arising from congestion of high tension exhibit an unusual amount of animal matter of an albuminous or mucous kind. The author states that he has, for several years, referred albuminous urine to congestion of the kidney, for the following reasons: 1. The urine often becomes albuminous during great embarrassment of the circulation in cases of organic disease of the heart, when the kidneys are otherwise healthy. 2. He has, in a few instances, observed temporary albuminuria during the congestive stage

of eruptive fevers. 3. In granular degeneration of the kidney, the amount of albumen in the urine is augmented by circumstances causing congestion of the kidney, and is removed by remedies suited to remove this. 4. Bright's disease of the kidney, in its earliest stage, presents the appearance of a highly-congested structure, and is excited by causes calculated to produce congestion, such as frequent irritation of the kidneys by stimulating liquors—congestion from exhausted tone; continued exposure to cold, especially after the kidneys have been thus excited—congestion from intropulsion. 5. The albumen in the urine abounds most in the congestive (first) stage of Bright's disease. We now shall pass in review the various *remedies* for congestion. The most important of these are such as contribute to the removal of the causes. Thus, when the congestion arises from the various forms of venous obstruction, such obstruction is to be removed by suitable means, or by repressing inordinate action of the heart, restoring the secretion of the various organs, &c. In the treatment of congestion arising from atony or weakness of the capillaries, the circumstances which have caused it, must be removed. Pressure, by supporting the weak vessels and promoting their contraction, is sometimes effectual in removing congestion—as also friction, astringents, and stimulants. Under certain circumstances congestion is better relieved by depletion and other evacuants. In general, congestion being in many instances caused by atony of the vessels, it may be counteracted by astringent and stimulant applications which brace the fibres and invigorate the circulation in a part—general tonics operate in a similar way on the whole system. It is probably in this way that bark and arsenic act—by their power of augmenting the tone of the vessels, they both prevent and remove internal congestions in ague. Iodine and its preparations seem to possess a similar virtue. Mineral acids have a like effect on general weakness.

We next come to the interesting subject of Local Hyperæmia—*with motion increased.* This state is also called *Determination of Blood*—of this we have numerous instances even in health; as blushing: the state of the uterus and breasts, at the periods of gestation and lactation, are the seats of determination of blood, as is evident by the increased quantity of blood in the part, and by the stronger pulsation of the arteries leading to the part. Determination to the head is a familiar instance; this is characterized by enlargement and throbbing of the temporal arteries. Fits of epilepsy and convulsive hysteria are immediately preceded by throbbing of the carotids, shewing that determination of blood is the proximate cause of the paroxysm. Pressure on the carotids has been known to prevent convulsive fits. The most common cases of determination of blood are those caused by the application of stimuli. In answer to the question, what is the physical cause of determination of blood? the author answers, that it is effected by enlargement of the arteries, which enlargement is the effect of the pressure of the arterial distention from behind acting on a tube, which has lost some of its contractile power. Thus the enlargement of the arteries leading to a part is the physical cause of determination of blood to that part. But to account physiologically for the cause of this enlargement, is not so easy a matter. The terms "active dilatation" (Hunter), and "vital turgescence" (Kaltenbrunner), have been applied to this state. The phrase "active dilatation," however, as applied to arte-

ries, seems to be a contradiction in terms. According to the author's views, the physiological condition seems to be a diminution of tonicity in the artery; so that it becomes passively distended by the *vis a tergo*. Dr. Billing's explanation of this diminished tonicity is, that it is occasioned by abstraction of the nervous influence from the dilated vessels. To this however Dr. Williams objects, for this among many other reasons, because it assumes that muscular irritability even in its lowest form, tonicity, is a property derived from the nerves. The objection, however, appears to us to be totally devoid of force—in the first place we cannot help thinking that between muscular irritability and arterial tonicity there is a difference somewhat more than in *degree*, we think there is a difference and a well-marked difference, in *kind* also—and again, even admitting that the property called tonicity was not exclusively dependent on nervous influence, no one will attempt to say that it is totally unconnected with it, or independent of it. But, as the author justly observes, the laws of tonicity and its relation to the nervous influence, require further investigation. The *final* cause of determination of blood is, that it is intended to support the well-being and function of the part, on the principle, "ubi stimulus, ibi fluxus." Determination of blood to internal organs may be occasioned by the application of cold to the surface of the body; for, by constricting the vessels of the surface and extremities, the force as well as the quantity of the circulating fluid are thrown on internal parts. Thus cold weather will cause dyspnœa, pain in the chest, pains in the head, colic, &c.

We shall now pass on to consider some of the results of general and local hyperæmia, scil. hæmorrhage, flux, and dropsy. The blood-vessels, when distended to a great degree, sometimes give way, and blood is effused. Congestion from *venous obstruction* produces hæmorrhage in the cases of *pulmonary apoplexy*, from obstruction on the left side of the heart; bronchial hæmorrhage and *hæmoptysis* from tubercles in the lungs; hæmatemesis and bleeding piles from obstructions of the liver. All cases of general or local hyperæmia do not result in hæmorrhage; some additional element is wanting; this element may be either in the *blood vessels* or in the *blood*. Sometimes the blood-vessels are in a diseased state from various causes—from various deposits into them—softening from inflammation or mal-nutrition, and from ulceration—and sometimes they are ruptured by mechanical injuries. In other instances the hæmorrhagic disposition may be traced to a diseased state of the blood. Another result of various kinds of hyperæmia is an effusion of the watery part of the blood with more or less animal and saline matter in solution. This result occurring in secretory organs or open surfaces, constitutes *fluxes*; in closed sacs or cellular texture, it constitutes *dropsies*. We shall first consider what fluxes and dropsies have in common. General plethora sometimes ends in flux or dropsy—the same result may happen when the blood-vessels are temporarily distended with an undue proportion of watery contents, as by injecting water into the veins of an animal; or by copious drinking of any liquid, especially where the functions of the kidneys or skin may be suspended from any cause. The most common causes of venous obstruction are visceral diseases, and these commonly produce either dropsy or flux. Thus, cirrhosis of the liver is the most frequent cause of simple

ascites. Structural diseases of the heart, especially if they affect the orifices or valves, commonly cause hydrothorax, bronchial flux, and sometimes general dropsy. Pulmonary congestion from causes impeding the respiration, sometimes results in bronchorrhœa or hydrothorax. Dropsies and fluxes may proceed from weakness of the circulation and atony of the vessels. Fluxes and dropsies sometimes occur after previous excessive excitement of the vessels of a part. Flux and dropsy are sometimes found to succeed to one another—ascites may subside on the occurrence of diarrhœa, or may come on when a diarrhœa of long-standing has been suddenly checked. Besides the causes already assigned, fluxes and dropsies may be traced sometimes to a general lax, flabby state of the tonic and contractile fibre, or to a poor, watery state of the blood, or to both.

We have seen that, of all the conditions of the blood tending to watery effusion, a poor or watery state of this fluid is the most obvious—it is for this reason that persons who have lost much blood are so liable to become dropsical; the bulk of the lost blood is replaced by watery serum absorbed from various sources; and thus the blood is in a diluted state. The way in which watery blood tends to produce dropsy and flux is not merely by the greater proneness of thin fluids to transude through the walls of the vessels, but also by the failure and irregular distribution of the force of the circulation, occasioned by the circulation of such blood. The circumstances which induce the thin state of the blood in its relation to dropsy, may be chiefly referred to imperfect excretion by the kidneys, liver, and skin, as the most common cause. In various forms of hyperæmia leading to dropsy and flux, these results generally ensue in proportion as the excreting organs fail, and their removal of these results is to be effected chiefly by means which restore or compensate the defective excretion. Exposure to cold may be followed by dropsy, and this result may appear attributable to checked perspiration; but checked perspiration of itself will not do it; there must be a failure in the action of the kidneys before this result will ensue. The occurrence of dropsy after scarlatina our author accounts for thus: it is observed in all such cases that the urine has been found albuminous, a circumstance which shews that the diseased action of the kidney is the most essential lesion connected with general dropsy—our author thinks that scarlatina impairs the action of the kidney by causing in these glands a highly-congested state which injures their secreting power. The form of dropsy which has been called inflammatory, from the circumstance of its being accompanied by a febrile state of the system, is a frequent result of exposure to cold. This inflammatory character of dropsy our author accounts for in a very ingenious way, by referring it to the irritating quality of the excrementitious matter which the failing function of the kidney leaves in the blood. Under such circumstances, urea has been found in the blood and in various effusions, and may be regarded as the *materies morbi* which irritates various parts, and from which the system seeking to relieve itself, excitement and various discharges ensue. This affection resembles acute rheumatism in two points; 1, in the number of parts which may be simultaneously or successively affected, and in the want of any constancy in the seat of the affections. Both these points prove that the cause is essentially situate in the blood. The nature of the excrementitious matter which accumulates in the blood, also approximates

these affections to gout and rheumatism. In the latter affections we know that lithic and lactic acids chiefly constitute this matter; and in these same affections there is very little doubt that urea is either produced in excess, or insufficiently excreted. We should not forget the proximity in composition between lithic acid and urea, and the probable conversion of the former into the latter. Lastly, the connexion between scanty urine and gout and rheumatism is apparent from the fact that rheumatism is frequently complicated with albuminuria (as after scarlatina); and granular degeneration of the kidneys (Bright's disease) is apt to supervene in the most aggravated forms of rheumatism. Besides the retention of excrementitious matter in the blood, there is a loss of albumen from this fluid. This, by thinning the blood, probably facilitates dropsical and profluvial effusions, more especially in the more chronic cases, and in the most anæmic subjects. Thus, then, it may be inferred that acute dropsy arises chiefly from the retention in the blood of excrementitious matter and water, which the kidneys fail to eliminate; and that the more chronic kinds, although often originating in the same way, are rather dependent on a poor or watery state of the blood, especially deficient in albumen. We shall now present as succinct a view as possible of the *treatment of dropsy.*

Besides the means required to remove the variety of hyperæmia inducing the dropsy, we must remedy those conditions of the blood which specially favour its occurrence. We have seen that a failure in the secreting powers of the kidneys is the chief cause of these conditions. This failure we have seen is chiefly owing to a highly-congested state of the kidneys, which induces albuminuria and its consequences. Thus then inflammatory or acute dropsy after scarlatina or exposure to cold is to be treated by blood-letting (cupping to the loins), hydragogue purgatives, and diaphoretics at first; afterwards by diuretics, which promote the action of the kidneys. Mercury has been found peculiarly efficacious in dropsy connected with diseased liver; and in combination with squill, digitalis, henbane and conium, forms the most useful diuretic in all recent cases of dropsy dependent on congestion without disease of the kidneys. In asthenic dropsy connected with a watery state of the blood, nourishing diet and tonics are indicated. Where dropsy is connected with long continuance of structural disease of the kidneys, liver, or other organs, tonics and invigorating measures must be combined with means to excite the failing excernent organs, or to produce some compensating discharge. Thus, in dropsy from chronic albuminuria, or advanced degrees of granular degeneration of the kidney, the occasional exhibition of hydragogue purgatives and diaphoretics and of diuretics (cantharides, digitalis and colchicum), is useful at the same time that bitters, with iodide of potassium, or mineral acids, are given to support the strength. In the more anæmic cases, iron is of use, unless it should be found to impair the little secreting power left in the kidneys, or to render the urine albuminous. Asthenic dropsy connected with diseased liver is often much relieved by mercurial and diuretic medicines, followed by or conjoined with vegetable tonics. The tendency of dropsy connected with disease of the heart, kidneys, or liver, to recur, and become chronic, renders it needful to vary as much as possible the remedies employed, as well as to support the strength. In

such cases we must not exhaust the powers of any secreting organ by too long acting on it, nor should we expend the efficacy of any one remedy by too long continuing its use. By employing sometimes diuretics, sometimes purgatives, sometimes diaphoretics, and by aiding each of these by local depletion or derivants, or by stimulants and tonics, according to the temporary prevalence of vascular fulness and excitement, or the converse, much may be effected to prolong life. It is useful, under such circumstances, to have at command a great variety of medicines, particularly diuretics, and to alternate them or vary them, in order to maintain, or increase their effects. Those found by the author most effectual are—combinations of mercury, squill, digitalis, and conium, (not in acute albuminuria); combinations of decoction of broom, or pyrola umbellata, with nitrate and acetate of potash; the juice or extract of taraxacum, with the same salts or bitartrate of potash, or with nitric acid,(particularly in hepatic disease); infusion or tincture of digitalis, with iodide of potassium, and bitartrate of potash (in dropsy after scarlatina); the same, together with increasing doses of tincture of cantharides (in asthenic cases of albuminuria, after cupping to the loins and hydragogue purgatives); ammonio-tartrate and ammonio-citrate of iron in Seltzer water, (in asthenic dropsy); gin in cream of tartar beverage (imperial); compound spirit of juniper, spirit of nitric ether, with various others (in cases of debility).

The subject of *inflammation* next presents itself; but to attempt an analysis of it here, would be entirely out of the question. We must therefore refer the reader to the book itself, assuring him that he will find his advantage in an attentive perusal of it. We shall now proceed to an analysis of that portion of the work which treats of Diagnosis and of the different modes of death. Diagnosis, says our author, may relate to diseases in their essential nature or pathology, or to those groups of symptoms that are classed as separate diseases by nosological arrangements. In other words, the object of diagnosis is to determine either the intimate nature and seat of a disease, or its name and place in some nosological arrangement. Diagnosis may be *general* or *special*. *General* diagnosis comprehends the distinction between the principles or elements of disease, as, for example, between congestion and inflammation; between nervous irritation and structural disease, &c. This is properly a branch of general pathology. *Special* diagnosis relates to the distinction of diseases according to their chief seat, where they have one, or, according to some other specific difference, where they have no particular seat. The modes of distinguishing diseases will vary much in different cases, according to the class of symptoms which first present themselves. This is illustrated by the following problems: general pathology having pointed out the general nature of a disease, it is required to determine its precise seat.

Example.—In a case in which fever, hard pulse, buffed blood, and local pains indicate inflammation, the seat of the inflammation is determined by the chief place of pain or uneasiness, (in the chest or side,) by the function most disturbed, (difficult breathing and cough,) to be in the organs of respiration; by the secretion proceeding from the part, (rusty, viscid expectoration,) and from the physical signs, (impaired breath-sound and stroke-sound in part of the chest with crepitant rhonchus,) to be in the

parenchyma of the lungs; that is pneumonia. General pathology here commences the diagnosis, which is completed by reference to symptoms explained by physiology and special pathology.

With respect to *Prognosis*, or the fore-knowledge of the results of disease, may be either *empirical* or *rational*. *Empirical* prognosis is that which is founded on experience or observation only, without regard to the nature of the disease or the reasons which determine the results. Rational prognosis is the estimation of the importance and tendencies of a disease from a knowledge of its causes, its true nature and symptoms, and of the power of treatment in regard to it. The chief circumstances from which a rational prognosis may be formed are :—the cause of the disease—the age—sex—temperament—present diseases and previous habits of the patient—state of patient at the time of the attack—seat and nature of the disease—its extent and progress—character of the symptoms. Bad symptoms are those which arise from an impediment of one or more of the functions more immediately concerned in the sustenance of life, the circulation of the blood, respiration, nutrition, and excretion. In proportion as these functions are more or less interfered with, life is threatened, and there is an approach to its destruction by one or other of those terminations, called *modes of death*. Thus there is death by *syncope*—cessation of the circulation; by *asphyxia* or *apnœa*—interruption of the respiration; and by *inanition*—death *by the pernicious influence of excrementitious matters*, and by poisons. All these agree in affecting the blood, either by altering its composition, or by arresting its circulation.

Death by *cardiac syncope* may occur in two ways—1, by the heart losing its irritability—2, by its being affected with tonic spasm. In both cases death is instantaneous, the patient suddenly turning pale, falling back or dropping down, and expiring with one gasp. The diseases in which death by cardiac syncope sometimes takes place are those of the heart; hæmorrhagic apoplexy; anæmia and adynamic fevers. Death by the *gradual cessation of the heart's action* is called *asthenia*—this is the mode of termination of many diseases, those which destroy life by exhausting the strength. The symptoms of the approach of death in this way, are those indicative of progressive loss of power. By *asphyxia* or *apnœa* is understood that mode of death wherein the respiratory function is the *first* to fail. Death by simple apnœa occurs in diseases of the lungs or air-tubes, in which the entrance of air into the lungs is impeded by any cause. Death by *coma*, or beginning at the brain, is caused by various influences—by obstruction to the circulation through the brain by pressure—by coagula within the vessels—by anæmia—and by various narcotic poisons, as opium, alcohol in large quantities, &c. The symptoms of coma are those of interrupted function of the brain, insensibility and suspension of voluntary motion. In conjunction with these symptoms, referrible to the sensorial and voluntary functions, there are often symptoms of various affections of the excito-motory system of the medulla; at first they are those of excitement, such as convulsion, vomiting, hiccup, contracted pupil, &c. The author notices a mode of death to which he gives the name of *necræmia*, or *death beginning with the blood*. This mode is presented in those fatal cases in which the first and most remarkable change is exhibited in the blood. In typhoid, malignant and pestilential fevers,

the blood, at an early period, exhibits changes which show that disorder begins with it. The petechiæ and vibices on the external surface, hæmorrhages, in internal parts, its fluidity and unusually dark aspect, its proneness to pass into decomposition, &c., all point out the blood as the first seat of disorder.

We find, from the length to which our analysis of this work has run, that we must now conclude. The extent of this analysis sufficiently indicates the high estimation in which we hold the work. We consider, in fact, that in producing it Dr. Williams has still further enhanced his already high character with the profession and the public. The plan of the work, the simplicity of style in which it is written, the happy illustrations in proof of the various positions laid down in it, derived from various sources, as also from his own extensive practice, all contribute to render it one of the most valuable boons conferred for many years on the student of medicine. We should like to have seen in it a general pathology of the different tissues and structures of the body, somewhat on the plan of Bichat's General Anatomy—or rather something like Pinel's arrangement of the diseases affecting the various membranes and tissues, the work, by the way, which first suggested to Bichat the composition of his celebrated *Antomie General*. We merely throw out this hint for Dr. Williams' future consideration in preparing a new edition, which we feel no doubt will soon be called for.

A Practical Treatise on the Diseases of the Testis, and of the Spermatic Cord and Scrotum. With Illustrations. By *T. B. Curling*, Lecturer on Surgery and Assistant Surgeon to the London Hospital, Surgeon to the Jews' Hospital, &c. 8vo. pp. 542. London: Longman and Co. 1843.

Mr. Curling offers the following reasons for selecting diseases of the testis as a subject for investigation, and for publishing a work upon a subject that might seem, if not exhausted, at all events, tolerably well cultivated and understood.

"My attention having been directed in the year 1831, to the subject of the Morbid Anatomy of the Testis, I have since lost no opportunity of studying the pathological changes to which this organ is liable. My inquiries have been much facilitated by a connexion formed very early in professional life with a large hospital and with a dispensary, which have supplied me with abundant means of acquiring a practical knowledge of the diseases of this important organ. The result of these investigations having furnished facts which appear of some interest and value in relation to certain affections of the testis but imperfectly understood, and to the treatment generally of the disorders of this part, I have ventured to submit them to the consideration of my professional brethren. In arranging the materials for publication I have endeavored to give a tolerably complete view of the different diseases of the testis and of the spermatic cord and scrotum, which I have described principally from my own observations. I have

at the same time availed myself of the labours of my predecessors; by which, it is hoped, I have not only added a good deal to the value of the work, but have also been able to correct and modify my own views concerning many of the subjects treated of.

"I was unwilling to overload a work which has somewhat exceeded the limits desired with elementary matter, to be found in most anatomical treatises; but as my researches on the structure of the testis have led me to describe certain parts rather differently from other anatomists, and have enabled me to throw some light on the interesting subject of the descent of the testis, I have prefixed a concise, but it is hoped a sufficiently minute account, of the anatomy of the parts in the adult and fœtal states, which, comprising, as it does, the most recent information on this subject, will probably be acceptable to my younger readers." viii.

There is little good done to science by overlaying it with books, more particularly treatises of an elaborate description. If unnecessarily multiplied they fatigue the reader, disgust the student, and breed a suspicion which damages the whole literature of the profession. Knowledge is progressive, and new works are needed from time to time to record that progress, diffuse an acquaintance with it, and develop the benefits that are to spring from it. If our current literature is below the level of science, whoever, in any department, brings it up to that, deserves every commendation. But if he gratuitously adds a big book to shelves that groan with them already, and, having only half-a-dozen new ideas to communicate, sets to work and ransacks every library to produce a compilation of some hundred pages, which he designates *his* Treatise, commendation is not the due of such a man, but censure of no sparing kind.

Whether Mr. Curling is to praised or blamed, whether he comes under the former category or the latter, our readers will presently perceive. But this we are bound to observe at starting, that he has always borne a high character with those who know him, for the steady pursuit of professional knowledge, and for no contemptible intellectual capacity.

The Anatomy of the Testis occupies an introductory portion of 48 pages. It may admit of doubt if this was needed. Of what use are systems of anatomy, if an account of the diseases of every organ is to be ushered in by an elaborate description of it? Sir Astley Cooper has set the example, but Sir Astley Cooper had a better excuse than those who follow in the same track—he had the *priority* which they have not. Horace and Sir Fretful Plagiary had the same idea, but Horace unfortunately had the start of the other. Had Sir Astley Cooper, or M. Cruveilhier not written a full account of the testis, the public might have felt indebted to Mr. Curling for his; but, under existing circumstances, it might, perhaps, be spared.

We will, however, run through Mr. C's description of the organ, and notice any new fact or new opinion in it.

1. *Muscularity of the Dartos?*—Our readers may remember enough of anatomy, to be aware that there have been many disputes on the structure of the dartos. Some have stood up for its muscularity—others have looked on it as little better than cellular tissue—and Cruveilhier, one of the latest authorities, regards it as a peculiar contractile sort of tissue, which he names, after it, the *Dartoïd*. Mr. Curling seems an advocate for its muscularity.

"The dartos has recently been carefully examined by Mr. Bowman, who considers it to be muscular, and composed of 'unstriped elementary fibres,' the presence of which, in consequence of the abundant admixture of areolar tissue, has not hitherto been clearly recognised.

"The movements of the scrotum, by the action of the dartos, are conspicuous enough; they are gradual, vermicular, and involuntary. Mr. Bowman states, that since satisfying himself of the existence of the unstriped fibre in the dartos, he has on many occasions detected a very decisive peristaltic action, advancing from one side of the scrotum to the other, and continued for a considerable period. This I have also myself observed. Contraction is excited by cold, and takes place under the influence of fright and during the venereal orgasm: relaxation is caused by heat: galvanism produces no effect." 2.

The microscope is all the fashion just now, and is a sort of judge and jury to a last appeal, on every litigated point. But it is fallible, as experience proves, and we had rather it were supported by other evidence, before we receive its dicta as conclusive. These "unstriped" fibres should be subjected to chemical analysis, and seen by other gentlemen as well as Mr. Bowman. That vermicular movement of the scrotum—noticed by Mr. Curling, must have been also noticed by all, under the influence of moderate cold or of excitement. But a contractile tissue, *not* muscular, may, we should conceive, give rise to it.

2. *Representative of the Omental Process of the Testis of the Rodents.*—"A small body of an irregular shape and variable size, and of a pale red or pinkish hue, is commonly found attached either to the upper extremity of the testis, or at the angle where the tunica vaginalis passes from the body of the gland to the epididymis. It is composed of a duplicature of this membrane, containing some fine cellular tissue and a number of small vessels. I have seen this little body in the testis of the fœtus whilst in the abdomen; and in early life it is often of proportionally larger size, and of a deeper red colour than in the adult. It is quite distinct from the pedunculated cysts often found attached to the head of the epididymis. This little appendage to the tunica vaginalis seems to correspond with, and to be a type of, the remarkable omental process attached to the superior part of the testis in the *Rodentia* and other animals. That it is an unimportant structure in the adult is shown by its being frequently wanting."

3. *Do the Ligamentous Columns of Tunica Albuginea exist?*—Sir Astley Cooper, in his account of the Tunica Albuginea Testis, represents the cavity of the tunica albuginea as traversed by numerous ligamentous cords, which pass from the mediastinum or rete testis, across to the anterior edge of the organ, supporting and packing the lobes. On this Mr. Curling observes:—"I have not been able to make out any such ligamentous processes, passing into the substance of the testis, as are represented in Sir A. Cooper's work (part i. pl. 2. fig. 3), which I have found to be an exaggerated view of the preparation from which it was taken. The cords described appear to me to consist chiefly of blood-vessels supported by slight fibrous processes from the tunica albuginea and cellular tissue. In a well-injected testis very little tissue of the nature of ligament can be found

between the lobes." So far as our own dissections have gone, they quite coincide with those of Mr. Curling.

4. *The Tubuli Seminiferi.*—The lobes of the testis, which are estimated by Krause of 404 to 484, are not entirely distinct, but communicate with one another by means of anastomoses between the tubuli. These anastomoses increase in frequency towards the circumference of the testicle. "The tubuli thus form one vast network of communication, so that it is impossible to isolate completely either a duct or a lobule. The credit of making this interesting discovery of the anastomoses of the seminal tubes is due to Lauth. In only one instance did he succeed in finding a duct terminating in a blind pouch, and this he regarded as exceptional. Blind ends have been found, however, more frequently by Krause. The anastomoses of the tubules have been observed in the rat and other animals as well as in man."

The following are the approved measurements, &c. of the tubuli.

"The tubuli are of a white colour and uniform size, but their calibre differs in different subjects, and varies a good deal according to the age of the subject and the state of activity of the testes, being larger in young adults and when distended with semen than in old persons and when the gland is in a state of rest. The size of the ducts also often differs in the two testes of the same subject. In general the calibre of the tubuli corresponds to the size of the testis. Observers do no exactly agree in their estimates of the diameter of the tubuli. The average diameter of the uninjected canal is estimated by Muller at $\frac{1}{18}$ of a line, by Lauth at $\frac{1}{183}$ of an inch. Krause found the tubuli, when filled with semen, to measure about $\frac{1}{12}$ of a line, and in old men and youths $\frac{1}{16}$. Monro reckoned the number of the seminiferous tubes at 300; Lauth made the average number 840, and he estimated the mean length of all the ducts united at 1750 feet. He found the individual ducts to vary in length, the mean being 25 inches. Krause estimated their entire length at 1015 feet. The membrane composing the tubuli is of a mucous character, as has been clearly proved by microscopic examination, and it is continuous with the mucous surface of the genito-urinary system. There is no appearance of an intertubular substance; the ducts are merely connected by a loose network of vessels, and consequently readily admit of being separated and unravelled." 18.

5. *Length of the Epididymis.*—Possibly some of our readers may suppose that it signifies not much, whether the canal of the epididymis is a little more or less in diameter, or some inches plus or minus in length. But anatomists are exact people and deal in precise admeasurements. The only pity is, that they can't agree. For example:—

"The body and tail of the epididymis are entirely made up of the convolutions of the single canal in which the vasa efferentia terminate, closely connected by cellular tissue. Monro described this canal as gradually increasing in size from the head to the tail, and he estimated its calibre about its middle at $\frac{1}{18}$ of an inch. Lauth states that its size is subject to great irregularities in different parts and in different subjects. This anatomist has particularly described the convolutions of this duct, and has shown that they are regularly arranged in four series, which successively increase in size, the first being the smallest, and the fourth the largest." "Monro estimated the length of the canal at thirty feet eleven inches. Lauth found its mean length to be nineteen feet four inches eight lines. The parietes of the canal are strong and bear considerable resis-

tance. The canal of the epididymis terminates in the excretory duct of the testis, the vas deferens, and is usually contracted at the part where the two join. It was calculated by Monro that the semen before arriving at the vas deferens traverses a tube forty-two feet in length. Lauth, however, makes the whole distance but little more than twenty-two feet." 23.

The slight difference between the measurement of these respectable anatomists is no more than as 2 to 1, which, considering that the question is a foot-rule one, must be looked upon as very moderate, and calculated to inspire great confidence in researches of this description.

6. *Muscularity of the Vas Deferens.*—This is unequivocal in the bear, bull, and other animals, but Mr. Curling has not been able to discover, with the microscope, more than simple fibrous tissue in the human vas deferens.

7. *The Spermatic Veins have Valves.*—Though many anatomists say no, Mr. Curling has observed valves in the larger veins. But they are seldom seen very near the testis, nor in the smaller veins, nor within the abdomen.

These are the only points that we can notice in Mr. Curling's account of the anatomy of the testis. We turn now to his description of—

The Testis in the Fœtus, and its Descent into the Scrotum.—The following is his description of the Gubernaculum.

"Attached to each testis whilst in the abdomen is a peculiar body which was termed by Mr. Hunter, who first described it, the *gubernaculum*. It is a soft solid projecting body of a conical form, which varies somewhat in shape and size at different periods of the testicular descent, becoming shorter and thicker as the gland approaches the abdominal ring. It is situated in front of the psoas muscle, to which it is connected by a reflexion of peritoneum. Its upper part is attached to the inferior extremity of the testis, lower end of the epididymis, and commencement of the vas deferens. The lower part of this process passes out of the abdomen at the abdominal ring, and diminishing in substance and spreading, terminates in three processes, each of which has a distinct attachment. The central part and bulk of the gubernaculum is composed of a soft, transparent, gelatinous substance, which, on examination in the microscope, is found to consist of nucleated cells, the primitive cellular tissue: this central mass is surrounded by a layer of well-developed muscular fibres, which may be distinguished by the naked eye, and which can be very distinctly recognised in the microscope to be composed of 'striped elementary fibres.' These muscular fibres, which may be traced the whole way from the ring to the testis, are surrounded by a layer of the soft elements of the cellular tissue similar to that composing the central mass; and in the same way as the testis the whole process, except at its posterior part, is invested with peritoneum. On carefully laying open the inguinal canal, and gently drawing up the gubernaculum, the muscular fibres may be traced to the three processes, which are attached as follows: the external and broadest is connected to Poupart's ligament in the inguinal canal; the middle forms a lengthened band, which escapes at the external abdominal ring, and descends to the bottom of the scrotum, where it joins the dartos; the internal passes in the direction inwards, and has a firm attachment to the os pubis and sheath of the rectus muscle. Besides these, a number of muscular fibres are reflected from the internal oblique on the front of the gubernaculum. It thus appears that the attachments of the muscle of the gubernaculum and those of the cremaster in

the adult are exactly similar. I have succeeded in tracing out the former before the testis has descended, at different stages of the process, and immediately after its completion; and of the identity of the two no doubt can be entertained. Carus was of opinion that the cremaster does not exist before the descent of the testis; but that it is formed mechanically, by the testis pushing before it the lower fibres of the internal oblique, so as to form the loups of this muscle. This view which has been adopted by M. Jules Cloquet, and after him by many of the anatomists of this country, is, as I have shewn elsewhere, clearly erroneous and inaccurate." 31.

We have made some dissections of the Gubernaculum, but we cannot boast of having perceived its muscularity with "the naked eye," so readily as Mr. Curling appears to have done. Nor can we avoid thinking that he has been felicitous in his dissections, making out, as he does, not only muscular fibres, but an elaborate series of origins and insertions.

It seems to need confirmation, *that* the Gubernaculum, which, if muscular, must have for its object to drag the testis down, should be transformed into the cremaster, whose object is to pull it up—*that* the scrotal fibres should, in the first place, in opposition to the common law of muscular contraction, contract *throughout their whole length*, reduce themselves, as it were, into nothing, and disappear, while the cremasteric fibres, so subordinate at first, should supersede the scrotal, and become largely developed.

Much as Mr. Curling condemns M. Jules Cloquet's account of the cremaster, we confess that it seems to us to tally more with actual and indisputable dissection, with what is obvious and demonstrable, than does Mr. Curling's. He owns that "a number of muscular fibres are reflected* from the internal oblique on the front of the gubernaculum." Those who doubt the correctness of his views may suspect that his ascending fibres of the gubernaculum are not altogether free of connexion with that internal oblique. The descending fibres of the gubernaculum, on the other hand, may be considered *the* gubernaculum, muscular in Mr. Curling's eye, not so in that of others.

In making these remarks, we would not be understood to deny the justice of our author's observations. They *may* be perfectly correct. But we cannot say that they are so demonstrably proved, nor so intrinsically probable, as to be beyond the reach of question, nor without corroborative dissections by others, can the nature of the gubernaculum be fairly looked on as decided. It is right, however, to let Mr. Curling complete his demonstration and explain his own view fully.

"In the passage of the testis from the abdomen to the bottom of the scrotum, the gubernaculum, including its peritoneal investment and muscular fibres, undergoes the same change as that which takes place in certain of the *rodentia* at the access of the season of sexual excitement; the muscles of the testis is gradually everted, until, when the transition is completed, it forms a muscular envelope external to the process of peritoneum, which surrounds the gland and front of the cord. As the testis approaches the bottom of the scrotum, the guber-

* *Reflected.* This term is strangely abused by some anatomists. Reflected means turned or bent back. How can the fibres of the internal oblique be so contorted. They maintain their natural direction, and pass across the front of the gubernaculum.—*Rev.*

naculum diminishes in size, owing to a change in the disposition of its cellular elements; the muscular fibres, however, undergo little or no diminution, and are very distinct around the tunica vaginalis in the recently-descended testis. The mass composing the central part of the gubernaculum, which is so soft, lax, and yielding, as in every way to facilitate these changes, becomes gradually diffused, and after the arrival of the testis in the scrotum contributes to form the loose cellular tissue, which afterwards exists so abundantly in this part: the middle attachment of the gubernaculum, which may be traced to the dartos at the bottom of the scrotum, gradually wastes away, and soon becomes indistinct, though slight traces of this process often remain to the latest period of life. Thus, after death, in dragging the testis of an adult out of the scrotum by pulling the cord, the lower part of the gland, which is uncovered by serous membrane, is often found connected to the bottom of the scrotum by a band of firm and dense cellular tissue, which requires division with the scalpel. This band is the remains of the middle attachment of the gubernaculum. In cases in which the testis has been retained in the groin, I have traced a cord of dense tissue from the gland to the lower part of the scrotum. After the arrival of the testis in the scrotum, the peritoneum with which it is closely invested, its original envelope, becomes the inner layer of the tunica vaginalis; whilst the pouch around, which is continuous with it, forms the outer layer, or vaginal sac. Immediately after the descent of the testis, this bag communicates with the abdomen, and in quadrupeds continues to do so during life; but in the human subject it soon begins to close, and when the fœtus is ushered into the world, the abdominal orifice is often shut, and the whole canal from the ring to the upper part of the testis is in general completely obliterated in the course of the first month after birth. The obliteration is effected by an intimate union of the surfaces of the serous membrane. It sometimes does not take place at all, or is delayed or only partially completed. Congenital hernia, or hydrocele, is the result of a failure in this process; and other forms of hydrocele are occasioned by imperfect obliteration of the canal, as will be hereafter explained.

"Much difference of opinion exists as to the immediate cause of the descent of the testis. Hunter, Meckel, and others, came to the conclusion that the muscular fibres of the cremaster are insufficient to bring the testis lower down than the abdominal ring, and complete the descent. They were not, however, acquainted with the attachment of this muscle to the pubes external to the ring, or it would be difficult to understand why Mr. Hunter, after arriving at the conviction that the cremaster passes up to the testis whilst in the abdomen chiefly from analogy, was not induced by the same process of reasoning to conclude, that a muscle capable of drawing down the testicle in animals would be adequate to accomplish the same purpose in the fœtus. The necessity for some active agent to effect this change in the latter would appear to be greater even than in animals, since, in the usual position of the fœtus in utero, the passage of the testis is contrary to gravitation, and unaided by the movements of respiration. Now, when we consider the attachments and connexions of this muscle in the fœtus, the perfect condition of its fibres as ascertained by microscopical examination, and the circumstance that there are no other means, no other motive powers by which this change can be effected, or in any way promoted, I think there is no reason to doubt that the cremaster executes the same office in the human embryo, as that which it undoubtedly performs in certain animals at a particular season. The fibres proceeding from Poupart's ligament and the obliquus internus tend to guide the gland into the inguinal canal, those attached to the os pubis to draw it below the abdominal ring, and the process descending to the scrotum to direct it to its final destination. As the descent approaches completion, the muscular fibres which perform so important a part in it, gradually become everted, and, instead of drawing down the testicle, acquire the new functions of elevating, supporting and compressing it." 36.

We have a full account of the *Functions of the Testis*. They are tolerably well known. Mr. Curling has several times discovered spermatozoa in the testes of men upwards of seventy years of age, and once in the testicle of a tailor who died at the age of eighty-seven; and there are instances on record of persons retaining the procreative faculty to the age of one hundred years. The tailor certainly did not bear out the proverb so derogatory to the manhood of his craft! Old Parr, who lived to the great age of 152, was found by Harvey to rejoice in testiculis *integris et magnis*. Mr. Curling gives some sound moral advice, which may be recommended to young men.

Before we quit this account of the Anatomy of the Testis, we must say that there does not appear in it a sufficient amount of interest or novelty, to have rendered its introduction into the volume necessary. The few original observations of the author might have formed the subject of a paper elsewhere, or might have been incorporated in a brief introductory chapter. The fault, however, if it be one, is of no great moment, as the reader, if he likes, may *skip* what the writer, we dare say, took a very great deal of pains with.

We pass to the Diseases of the Testis.

1. CONGENITAL IMPERFECTIONS AND MALFORMATIONS.

The first section of this first chapter is occupied with *Numerical Excesses and Defects*.

An account is first given of *Supernumerary Testes*. Nature has not been liberal in this respect; for most of the instances on record are too apocryphal or vague to be relied on. Perhaps as good an instance as any is the following:—

"Dr. Macann, staff-surgeon, relates, that on examining a recruit about twenty years of age, a body was found on the right side of the scrotum, which was so similar to the two testicles in size, form, feeling and consistence, as to leave no doubt of its being a third testicle. This body was situated between the groin and the proper testicle of the right side, with which, however, it did not seem to be in immediate contact, but to be suspended, as it were, by a shorter cord or hung up in a separate sac. The right spermatic cord was much thicker than natural at its upper part, where, in fact, it consisted of two cords, one of which was distinctly traced into the upper testicle on this side, and the other, much longer, into the lower testicle, and in each of those parts as well as in the cord on the left side, the vas deferens could be distinctly felt, like a piece of whipcord, between the fingers. The man stated that the third testicle had occupied its present situation as long as he could remember, and had never caused him any inconvenience." 51.

A piece of omentum, a fatty or fibrous tumor in the scrotum, or an encysted hydrocele of the cord, might be readily mistaken for an extra testis. Dr. Monsey thought he was favoured, but he had only an indurated fibrous tumor attached apparently to the tunica vaginalis.

The converse of too many testes is, of course, *too few testicles*. There have been many reported instances of *monorchides* or one-testicled men: most of them were, probably, cases in which one remained in the abdomen,

or had been completely atrophied. Mr. Curling quotes a case from Mr. Paget, which is not quite conclusive; and another from Dr. Fisher, of Boston, of a more satisfactory character. In a case of Mr. Thurnam's one testis would appear not to have been formed, the other not to have descended.

A curious instance of *union of the two testes* in the abdomen, along with the two kidneys and suprărenal capsules is detailed.

Deficiencies and Imperfections of the Vas Deferens.—These are considered rather in detail. Several instances are quoted in which the vas deferens, of one or both sides, terminated in a cul-de-sac, or in an imperfect vesicula seminalis. The duct, too, has been found wanting throughout nearly its whole extent.

"Mr. Paget has happily explained the origin of these several defects in the vas deferens by reference to the mode of development of the special organs of generation. He observes, after Müller and Valentin, that, in the normal course of human development, the proper genital organs are in either sex developed in two distinct pieces: namely, the part for the formation of the generative substance, the testicle or ovary, and the part for the conveyance of that substance out of the body, the seminal or oviduct. The testicle or ovary, as the case may be, (and in their earliest periods they cannot be distinguished), is formed on the inner concave side of the corpsus Wolffianum; and the seminal or oviduct, which is originally an isolated tube closed at both extremities, passes along the outer border of that body, from the level of the formative organ above to the cloaca or common sinus of the urinary, genital, and digestive systems below. The perfection of development is attained only by the conducting tube acquiring its just connexions at once with the formative organ, and, through the medium of the cloaca, with the exterior of the body. The sexual character is first established, when, in the male, the formative and conducting organs become connected by the development of intermediate tubes which constitute the epididymis; or when, in the female, a simple aperture is formed at the upper extremity of the conducting tube, and is placed closely adjacent to the formative organ. In both sexes alike, the lower extremities of the conducting tubes first open into the common cloaca, and subsequently, when that cavity is partitioned into bladder and rectum, or bladder, vagina, and rectum, they acquire in each their just connexions, and become in the male the perfect vasa deferentia, and in the female the Fallopian tubes and uterus.

"Now in Brugnone's case, and in Bosscha's, we have examples of one of the male conducting tubes being developed in only a very small portion of its natural extent. These, therefore, clearly confirm the description just given; for they prove that the testes may be formed quite independently of the vasa deferentia. In the other cases the vas deferens was probably formed originally in its whole length; but it seems to have failed of acquiring its due connexion in the one series of defects at the end next to the testicle, and in the other at the end next to the bladder." 62.

Such views are ingenious, and probably not very wide of truth. But they must not always be implicitly received. Nothing could be more simple, or, seemingly, more satisfactory, than the explanation of hare-lip, cleft-palate, &c., by the occurrence of arrest of development in the mesial line, and imperfect fusion of the lateral halves of the organs. Yet M. Cruveilhier assures us that at no period of fœtal development has he seen such halves or their coalescence. Facts are yet to be rigorously ob-

served before the generalizations of transcendental anatomy can be implicitly received.

There is a more practical question in the back-ground—what influence have deficiencies and imperfections of the vas deferens on the evolution of the testis? Let Mr. Curling reply:

"In the case of the adult which occurred at St. Bartholomew's Hospital the testis was small, and its structure appeared granular, like the undeveloped testis of a youth; but as it had not descended into the scrotum, and was combined with hernia, there may have been other causes impeding its due evolution. In Mr. Hunter's case, the testicles which were in the scrotum were very sound. In the case of the man related by Brugnone the testis on the side corresponding to the defective vas deferens was perfectly sound, and nearly of the same size as the other. So also in Bosscha's case it is stated that the testis was sound. Although either of these defects in the vas deferens renders the gland a useless organ, and if it occurred on both sides of the body would necessarily cause impotency, these cases, nevertheless, tend to show that the absence or imperfection of the excretory duct does not prevent the development of the testis at the proper period, and has no direct influence in causing it to waste, and these inferences are fully confirmed by experiments on animals." 63.

Experiments of Sir Astley Cooper's and of our author's own, are appealed to in confirmation of this view.

Some years ago, it was proposed to cure certain diseases of the testis, by destroying a portion of the vas deferens, it being contended that wasting of the gland would be the consequence. We argued, at the time, that this was proceeding on a false analogy, and that atrophy of the organ would probably not follow. The statements found above confirm this opinion.

Imperfect Descent of the Testis.

One or both testes may, as is well known, be detained at birth, in the abdomen, in the inguinal canal, or in the groin just outside the external abdominal ring. In a table of one hundred and three male infants examined by Wrisberg at the time of birth, it appears that seventy-three had both testes in the scrotum; in twenty-one, one or both were in the groin; of these, five had both, seven the right, and nine the left in the groin; in twelve, four had both, three the right, five the left, only in the abdomen. It would almost appear that, in the majority of instances, the imperfection is most frequent on the left side. This, however, is scarcely borne out by the observations of others.

Sometimes the testis continues fixed in the improper situation. Mr. Curling is of opinion that unless it descends within a twelvemonth after birth, it is rarely completed without an accompanying hernia. When the descent is not completed before puberty, uneasiness in the part is sometimes experienced, from the enlarging gland being retained in the inguinal canal.

The following are Mr. C.'s ideas on the cause of imperfect descent of the testis:—

"It is clear that there must not only be a perfect adaptation of parts, a due relation between the body drawn down, and the structures which it traverses, but also corresponding power in the agent by which it is accomplished. There are few muscles in the human body whose development in different individuals

varies in a greater degree than that of the cremaster. And if such be the case after birth, it is not unreasonable to presume that similar differences exist in the fœtus before the descent of the gland, and that a failure in that process may be the result of deficient power in the musculus testis to accomplish the passage. May we not also conclude that this muscle is sometimes paralysed, and that the faulty descent is owing to a want of a due supply of the nervous energy which we know is often denied to other muscles during fœtal existence, and is the cause of deformities in the feet and other parts with which infants are often ushered into the world? I think, indeed, we may fairly enumerate paralysis and defective development of the cremaster amongst the causes of the imperfect descent of the testis." 69.

Sometimes adhesions, the consequence of intra-uterine peritonitis, connect the testis to the viscera, &c. in the abdomen. Many instances of this are cited. Mr. Hunter was of opinion that the obstruction was often at the outer ring, and the frequent persistence of the testis in the groin seems to give a colour to the notion. In short, Mr. Curling concludes that the failure in the descent of the testis may result from want of power or paralysis of the cremaster muscle, from adhesions retaining the gland within the abdomen, and from a contracted state of the opening of the external abdominal ring.

The Condition of the Undescended Testis is next touched upon by Mr. Curling. It is well known that Mr. Hunter believed that a testis which remains in the abdomen is imperfect, and remains *because* it is so. The only case that he saw and has described contradicts his opinion. What anatomical evidence exists upon the subject leans in the same direction. We conceive that if a person whose testes have not quitted the abdomen presents the appearances, feels the passions, and displays the ordinary evidences of the powers of a man, he has no great reason to dread incompetency or accuse his fate. But if his appearance is unmanly, his passions weak, and their manifestation imperfect, the affair has a different aspect. The proof of the pudding, in fact, is in the eating, and the virility of any given individual is only to be settled by experience. We are not warranted in predicting that a child whose testes do not descend will necessarily prove sexually incompetent as an adult, for the evidence, so far as it goes, and the presumption, are, on the whole, in his favour.

When arrested in the inguinal canal, the testis would appear to be more frequently atrophied than when retained in the abdomen. In the former case, "the organ is liable to be compressed during any violent action of the abdominal muscles, and even in acute flexion of the thigh, as in walking up stairs, and on bending the body forwards whilst in the sitting posture. It is exposed to injury from blows which, being fixed it is unable to elude, and to pressure from the frequent manipulation of the surgeon, and the ruder handling of bandage-makers, and often through ignorance from the application of a truss. It occasionally happens that a testis, after retention in the abdomen, without any uneasiness having been experienced, passes into the inguinal canal, and sometimes appears at the external ring, playing backwards from one situation to another. When this is the case, the gland is liable to be caught at some particular part by a sudden contraction or spasm of the abdominal muscles, which gives rise to violent pain

and suffering, and a sickening sensation which lasts for some hours unless relieved by the hot bath, fomentations, and opiates." Mr. Curling, therefore, thinks a testis in the abdomen "in a more satisfactory state," than one in the groin.

"On this account, and as the descent is seldom perfectly accomplished when delayed beyond the age of ten or twelve, I think it becomes a serious consideration in cases where the gland does not make its appearance till this late period, whether the well-being of the patient would not be best consulted by our employing some mechanical means to prevent the escape of the organ from the abdomen. A strong reason for adopting this practice is afforded by the great liability to rupture which exists in all cases of the tardy descent of this organ, owing to the persistence of a sac ready prepared for the reception of a protrusion, and in many instances to adhesions between the testis and intestine or omentum. A hernia may occur whilst the testis is still in the abdomen, or after it has passed the ring, and the viscera may descend into the scrotum, the gland being detained in the groin. Cases of this kind are very embarrassing, as it is seldom practicable to fulfil the two opposite indications of preventing the protrusion of the viscera, and encouraging the descent of the testis." 80.

We are inclined to agree with Mr. Curling in this recommendation. We certainly conceive that a testis in the abdomen is in a better situation than one in the groin, and cannot perceive the advantage of aggravating a hernia for the sake of obtaining what is only an imaginary good, perhaps a real evil.

Mankind will not always reason philosophically, and the prejudice is unquestionably in favour of visible and tangible testicles. A medical student, in whom they had not descended, committed suicide in consequence. He ought to have *known* better, the more so, as when the body was examined the testes in the abdomen were nearly, if not quite, their natural size, and the ducts contained semen.

"It occasionally happens that a testis descends into the upper part of the scrotum accompanied with a reducible hernia without adhesion to the gland. In such a case the rupture may be reduced without the testis, and admit of the application of a truss, which serves the double purpose of preventing the hernial protrusion and preventing the testis from reascending. Cases, however, in which this practice can be adopted are very rare, for frequently the rupture cannot be returned without the testis, and, in many cases, it is impossible to apply the truss without painful pressure being made upon the gland." 83.

An operation was attempted in one case, at Munich, with the view of bringing a testis from the groin to the scrotum and fastening it in that situation. The success seems to have been problematical, and the experiment altogether one of dubious propriety.

Mr. Curling dwells upon one disadvantage attending the imperfect descent of the testis, more particularly when it remains in the abdomen—we allude to the more serious consequences which result from its diseases. Instead of being connected with a small serous membrane, the tunica vaginalis, the organ is then in contact with the peritoneum itself, and extension of inflammatory action to this is a matter of no slight moment. The following cases are detailed by Mr. Curling as instances of this description.

Case.—"A lad, ten years of age, was admitted into the London Hospital from

a distance in the country, dangerously ill. His mother, who came with him, stated that on returning from school four days before, he was kicked in the right groin by one of his school-fellows. He suffered great pain at the time, and on the following day became very ill. Having continued to get worse, he was brought to the hospital. The boy was evidently seriously ill from the effects of acute peritonitis. He was almost in a state of collapse; his countenance was anxious; his pulse quick, small and feeble; his abdomen hot, tumid, and extremely tender; and his bowels constipated, but they had been opened since the accident. There was a considerable diffused swelling in the right groin, and the right side of the scrotum was empty. The boy's state was such, that no active means could be taken to relieve him, and he died in twelve hours after his arrival at the hospital. On examination of the body, marks of extensive peritonitis were found throughout the whole of the abdominal cavity, the viscera being coated with lymph, and a turbid serum abundantly effused. In the right iliac fossa, just beneath the peritoneum, were seen two small abscesses of recent formation. An atrophied testis was discovered close to the external ring, amongst a mass of cellular tissue, infiltrated with pus and lymph. There were indistinct traces of a tunica vaginalis continuous with the peritoneum. I apprehend that, in this case, the blow occasioned inflammation in the testis and surrounding parts, which, extending to the peritoneum, caused the patient's death." 86.

This case does not appear to us to be very conclusive on the point. The testis was atrophied and is not shewn to have contributed in any way to the inflammation, while the "indistinct traces of a tunica vaginalis continuous with the peritoneum" can scarcely be allowed to go for much. It is far from improbable, that the injury gave rise to inflammation and suppuration in the cellular membrane of the inguinal canal, and that this extended directly and continuously to the peritoneum. Be this as it may, the case is interesting.

Case 2.—"I was summoned one evening to the hospital to see a patient of Mr. Luke's, who was supposed to have strangulated hernia. On my arrival I found the patient, a stout labourer, aged 33, and a married man, with a considerable swelling in the right groin, which was of an oval form, received a slight impulse on coughing, and was more solid and tender than is usually the case with a rupture. The house pupils had made unsuccessful attempts to reduce the swelling, which gave the man much pain. He stated that he was subject to a swelling in the groin, which occasionally came down in the day time and disappeared at night, but he had never worn a truss. It descended the evening before, and caused considerable pain; and although it went away during the night, the abdomen had continued painful during the day. Whilst straining himself at work in the evening it again made its appearance; and as it occasioned considerable pain, he came to the hospital for relief. The abdomen was tender on pressure and he complained of pain in it chiefly in the vicinity of the umbilicus. He did not feel sick, and his bowels had been open twice during the day. The pulse was full and hard. There was no testicle on the right side of the scrotum, but the left was in its natural situation, and of proper size. I concluded that the tumour consisted of a retained testis which had been accidentally protruded at the external abdominal ring, and become inflamed from pressure, and that the inflammation had extended to the peritoneum, the latter membrane being, however, only slightly affected. I could not quite satisfy myself whether a portion of intestine had accompanied the testis, though this appeared very probable. I ordered the man to be bled to ℥xvj., fourteen leeches to be applied over the swelling, and a brisk cathartic to be given him. He continued in suffering during the early part of the night, but having dropped asleep he found on awaking that the swelling had disappeared. The bowels were relieved in the course

of the morning, but the groin and abdomen continued tender for two or three days. There was still a tendency to reprotrusion of the testis and intestine when the man coughed. A truss therefore was applied as soon as the pressure of it could be borne, which was six days after his admission, when he was discharged." 87.

Here was certainly inflammation of an undescended testis, but the symptoms can scarcely be said to have been violent, not so much so indeed as we have seen them in common "hernia humoralis." It is possible, however, to conceive such a case pushed to a dangerous degree, and it is probable that if the non-descent of the testis were an ordinary or a very frequent occurrence, dangerous inflammation of the peritoneum might now and then be the consequence.

Mr. Curling makes some judicious remarks on the *Diagnosis in Cases of Imperfect Descent of the Testis.* They may be loosely said to resolve themselves into this—always look if the testis is in the scrotum. If it is not, a case of suspicion lies against the tumor in the groin, and the surgeon must exercise his judgment and sagacity in forming an opinion on its nature.

Descent of the Testis into the Perinæum.—It is difficult to say why this should occur, or how it can happen, unless there be some deviation from the normal condition of the parts. Mr. Hunter saw one case, and was consulted on another. A case, too occurred at the London Hospital. The testis is exposed to injury in sitting, and, of course, in riding on horseback. Mr. Hunter advised that the organ should be supported in a situation near the groin, by the application of a bandage that might hinder its descent into the perinæum, by which the parts might be in time so consolidated as to retain it by the side of the scrotum.

ATROPHY OF THE TESTIS.

Mr. Curling considers this under two heads—1, Arrest of Development; and 2, Wasting.

Arrest of Development.—There are few members of the profession who have not witnessed cases, more or less marked, of this. An instance related by Mr. Wilson is curious, from the sudden start which the organs made. Mr. W. was consulted "by a gentleman twenty-six years of age on the propriety of entering the marriage state, whose penis and testicles very little exceeded in size those of a youth of eight years of age. He had never felt the desire for sexual intercourse until he became acquainted with his intended wife; since that period he had experienced repeated erections, attended with nocturnal emissions. He married, became the father of a family; and these parts, which at six and twenty years of age were so much smaller than usual, at twenty-eight had increased nearly to the usual size of those of an adult man."

In reference to this subject it is interesting to notice the connexion between imperfect development of the testes and defective organization of the brain. Mr. C. refers to two cases of idiots, in which the testes were very imperfectly developed. Mr. C. adds :—

"I have remarked that this gland, when retained in the abdomen or inguinal canal, does not in general acquire its complete state of development, and that, though frequently capable of secreting, it is commonly small in size. I have also noticed, in cases of congenital inguinal hernia, that the testis, even in its natural situation, was not of its proper size at the period of puberty; so that when the infirmity existed on one side only, the testis was not more than half or two-thirds the size of the other gland. The arrest of growth in this latter case is attributable to the combined effects of the pressure of the protruded intestine on the vessels of the cord, and to the obstruction to the circulation caused by the application of trusses and bandages to the groin." 98.

Wasting of the Testis.

Mr. Curling observes that, to determine what is or is not wasting of the testis, we must first fix something like a standard weight of the organ. From numerous experiments, the weight was found, in healthy adults, to vary from four drachms to nine, the mean weight being six drachms. In the most lingering cases of phthisis and in other emaciating diseases the organ was never found to weigh less than three drachms. An adult testis weighing less than three drachms he would consider atrophied.

"A testis in an advanced state of wasting, not arising from disease of the gland, usually preserves its shape, but feels soft, having lost its elasticity and firmness. Its texture is pale and exhibits few blood vessels, tubuli and septa dividing the lobes are indistinct, and the former cannot be so readily drawn out into shreds as before. The epididymis does not usually waste so soon nor in the same degree as the body of the testis. It sometimes, however, loses its characteristic appearance, and I have even found it reduced to a few fibrous threads. The fluid pressed out of the wasted testis and epididymis is entirely destitute of spermatic granules and spermatozoa. In many instances, adipose tissue is deposited behind the tunica vaginalis, and encroaches on the epididymis and posterior part of the testis. Mr. Gulliver has recently discovered fatty matter in the glandular substance of atrophied testes, and I have since had an opportunity of confirming this interesting observation." 99.

Mr. C. relates a case in point. He then goes on to say :—

"The structures composing the spermatic cord undergo a corresponding diminution; the cremaster muscle disappears, the nerves shrink, and the vessels are reduced in size and number. The vas deferens, though small, can generally be injected with mercury as far as the commencement of the epididymis. A testis atrophied from disease is not only of diminished size and weight, but is altered in shape, being uneven and irregular and sometimes of an elongated form. The surfaces of the tunica vaginalis are adherent, and its cavity is partly or entirely obliterated. There is no, or very little, trace of the proper glandular structure, the organ being converted into fibrous tissue of a firm texture. It loses its peculiar sensibility to pressure, but is sometimes the seat of morbid sensibility." 100.

Impeded circulation, pressure, want of exercise, loss of nervous influence, may be naturally supposed to operate as causes of atrophy of the testicle. So an aneurysm of the aorta, at the origin of the spermatic arteries, the application of a truss, the pressure of dilated veins, ligature of the spermatic artery have given rise to the affection.

Mr. Curling inquires if chastity has this effect. He thinks not. It is

probable, however, that the testis offers no exception to the general physiological law—that the moderate exercise of an organ contributes to its development and perfection, its inaction to the reverse. The following case seems to support such an opinion.

Case.—"A man fifty-two years of age, and much emaciated, was brought to the hospital in a half-insensible state, and sinking, in the severe winter of February, 1838. There was an extensive ulcerated sore in the perineum, through which the urine dribbled away, no water passing by the penis. The man could give no account of himself; but his wife stated that he underwent an operation in the perineum, at the hospital, about twelve years ago; that the water had passed from underneath ever since, and that he had long been out of health. He gradually sank, and died on the third day after his admission. On examination of the body both lungs were found hepatised, but the heart and abdomen viscera were sound. Both kidneys were diseased. The bladder was contracted and empty. The prostate was converted into a multilocular purulent cavity, the uretha covering it being riddled with the enlarged prostatic openings. Two ulcerated apertures, each a quarter of an inch in diameter, in the membranous part of the urethra, communicated with the sore in the perineum. The urethra was completely obliterated and impervious near the meatus, and strictured in other parts. Both testes were atrophied, being scarcely larger than hazel nuts, but the tubular structure was still apparent. There was a small hydrocele connected with the right testis. The severe disease of the urinary organs must have incapacitated this man for sexual connexion for a long period of years, and to this circumstance we must chiefly attribute the atrophy of the testes, since the organs were not otherwise diseased." 104.

Mr. Curling has never seen atrophy of the testis from enlargement of the prostate. It sometimes happens in paraplegia, and from injury of the spine. The most common cause, he thinks, is inflammation. Mumps, by metastasis, give rise to it. Abuse of venery and onanism lead to it—not very unfrequently if we may trust to our own observation. Mr. C. doubts the reputed effects of iodine—so, we must admit, do we. It follows injuries of the head.

Case.—"A few years ago a man who had met with an injury of this description, which had been followed by wasting of the testes, and the development of tumours on each side of the chest, resembling mammæ, presented himself at the different hospitals in London. I saw him in March, 1828, at the London Hospital, when he had the appearance of a man who had seen hard service. He stated that he was about fifty-nine years of age, a married man, and the father of several children. He had belonged to the legion in the Queen of Spain's service. About two years and a half previously, in an attempt to jump over a trench in a retreat, he fell backwards, and injured the posterior part of his head. Whilst on the ground he received a bayonet wound on the left side, and a sabre cut on the forehead of the same side. He recovered from these injuries, and returned to England. Since the accident he had completely lost his virility. He had no desire for sexual connexion; his penis had dwindled in size; his right testis had gradually wasted, and was no larger than a horse bean, and the left gland was also a good deal diminished in bulk. The skull at the occiput seemed somewhat flattened." 108.

Some cases of a similar description are quoted from Larrey, Hennen, and Lallemand. Mr. Curling remarks on them:—

"We cannot doubt that in these cases the loss of sexual desire and the wasting of the testes were the direct results of the injury to the brain, and they go far to

prove the essential dependence of the functions of these glands upon the cerebral organ. The physiologist cannot fail to notice the rapidity with which the atrophy is stated in some of the cases to have succeeded the injury, and the extent to which it proceeded. The withering of the testicles was indeed so remarkable, that it can only be attributed to the sudden and complete extinction of the sexual instinct resident in the brain, and (if I may so express myself) to the immediate impression on the system of the future uselessness of these organs. In old age and in lingering diseases the decay of the testicles is extremely slow and gradual, and is never carried to the extent observed in cases of injury to the brain. In fact, men have survived the power or desise of performing the sexual act many years without the testes being materially reduced in size. We have seen, too, that in animals the testes have been rendered useless by interrupting the vasa deferentia, without any such striking effect being produced on the glands as occurred in these cases of cerebral injury." 110.

It is a priori exceedingly improbable that an instinct so powerful as the sexual passion, and one that so influences the physical and moral constitution of the animal, should be unconnected in a direct and immediate manner with the cerebral centre. What reasoning would prompt us to presume, facts of the nature of those just related go far towards proving. Difficulties, no doubt, attend the subject, and the precise amount of influence exerted by the cerebrum or cerebellum on the generative organs, will probably never be determined.

Mr. Curling alludes to other instances of wasting of the testis unaccounted for by any apparent cause. Thus, a well-grown boy between nine and ten years of age was observed to grow more delicate in his figure for some months. His mother discovered that his testicles had almost disappeared. On examination, it was difficult to find them, and when discovered, they did not seem larger than two full-grown peas. The mother asserted that he was born with them of the usual size, and that they continued to grow for some time afterwards. Baron Larrey relates, that in several soldiers of the army in Egypt, at the close of the campaign in 1799, the testicles almost entirely disappeared, for which he assigns no satisfactory cause.

The conclusion at which he arrives is far from encouraging. He observes :—

"An investigation of the causes of atrophy of the testis is sufficient to show that we have little power by any mode of treatment to promote the development or arrest the decay of this organ. They are commonly the result of actions beyond the surgeon's reach or control. In certain cases, as in atrophy from pressure, or an impeded circulation, we may by judicious measures, assist in retarding the wasting process; but a statement of the circumstances which conduce to this change is sufficient to indicate the means required to check its progress." 111.

We cannot say that we agree altogether with Mr. Curling. Many cases of atrophy of the testis are unquestionably altogether beyond our reach, and in most the prospect is a gloomy one. But there are some, at all events, which are benefitted by treatment, and hold out some encouragement to the practical surgeon. We allude particularly to the atrophy which results from onanism or from excessive sexual indulgences. We have seen some remarkable instances of restoration of the organs, when the wasting had proceeded to such a degree as scarcely to justify hopes of recovery. Occasional connexion—the shower-bath—cold sea-

bathing, &c.—country air and excercise—a generous diet—tonics—and proper attention to the secretions have seemed of essential service. We have thought that the combination of the tinctura ferri sesquichloridi with the tinctura lyttæ has been useful.

We pass over a chapter on Injuries of the Testis, and one on Self-castration, which present nothing to detain us; unless, perhaps we may pause to remark, that the testicle is more often wounded than some people suppose, in operations for hydrocele, and no great matter neither—and that cases of self-castration usually do well, severe as is the proceeding itself, without precautions respecting hæmorrhage, and with the disadvantage of that morbid state of mind which has usually prompted to the mutilation.

HYDROCELE.

Mr. Curling first alludes to what has been termed *acute hydrocele*, inflammation of the tunica vaginalis. Its inflammatory changes resemble those of the other serous membranes. Adhesions are probably the usual result, but sometimes, as is well known, the opposed surfaces do not unite although they cease to secrete. It is a curious fact that inflammation of the tunic is more apt to be propagated to the epididymis than to the body of the testis, which has been accounted for in this manner by Gendrin. "He says, when the subserous cellular tissue, which always participates in the inflammation of a serous membrane, penetrates into the interior of an organ, it becomes a ready means of communicating the inflammatory action; but when the contiguous organ or subjacent part is of a different structure from that of the cellular tissue, the extention of inflammation inwards is checked. Thus, in the case of the inflamed tunica vaginalis, the cellular tissue readily transmitted the morbid action to the epididymis, but the tunica albuginea arrested its progress to the body of the testis; and this explains the fact that, after inflammation of the tunica vaginalis excited by injection, the body of the gland is rarely found to suffer. On the other hand, the epididymis is seldom attacked with inflammation without the disease being quickly propagated to the tunica vaganilis."

Mr. C. presents a tabular View, a good one, of the different Varieties of Hydrocele. We insert it. (*See next page.*)

We have first a good account of *Simple Hydrocele of the Testis.* Into the general history of so familiar a complaint it is unnecessary for us to enter. We shall merely select a point here and there for notice.

1. We have a short and statistical view of the quantity of fluid contained in Hydroceles.

"In this country it seldom exceeds twenty ounces, though it has been known to amount to several pints. The largest quantity which I have met with is forty-eight ounces. Mr. Cline is said to have removed from Gibbon, the historian, as much as six quarts. From a table of a thousand cases of hydrocele which occurred at the native hospital of Calcutta, constructed by Dr. Dujat, it appears that the quantity of serum evacuated varied from less than ten upwards of one hundred ounces. Of 370 cases of double hydrocele, the fluid was more abundant on the right sight in 109, and on the left side in 128. Of the 630 cases of single hydrocele, in rather more than a third of the number the quantity of fluid was under

ten ounces ; in two sevenths it was from ten to nineteen ounces ; in nearly a third from twenty to forty-nine ; and in eighteen cases the quantity of serum was from 50 to 120 ounces." 127.

2. After noticing the form of *Hydrocele* termed multilocular, in which partial adhesions of the tunic produce a sacculated arrangement of it, the cysts sometimes not communicating with each other, Mr. C. goes on to say, that he has seen the sac divided into two distinct cavities, by a membranous partition (a circumstance which we also have witnessed), and he adds :—" There is one kind of sac or pouch often met with in hydroceles

---

Hydrocele

- Of the Testis
  - Simple.
  - Congenital.
  - Encysted.
    - Of the Epididymis.
    - Of the Tunica Albuginea.
    - Of the Tunica Vaginalis.
- Of the Spermatic Cord
  - Diffused.
  - Encysted.
- Complications of
  - Simple H. combined with Encysted H. of the Testis.
  - Simple H. combined with Encysted H. of the Cord.
  - Simple H. combined with Diffused H. of the Cord.
  - Oscheo-Hydrocele
    - Simple H. combined with Inguinal Hernia.
    - Encysted H. of the Cord combined with Inguinal Hernia.
- Of the Hernial Sac
  - True.
  - Spurious.

which does not appear to have been described. It is situated on the inner side of the testis; but the opening into it is always found on the outer side, between the body of the gland and the middle of the epididymis. This sac, which varies very much in size, is formed by the distention of the cul de sac which I have described as existing naturally at this part. Two examples of this kind of pouch in the Hunterian Collection were shown me by Mr. Paget."

3. *Age for Hydrocele.*—It would seem to prefer early infancy and middle age. "In sixty cases of hydrocele, M. Velpeau of Paris found,

Between the ages of 15 and 20	- - -	3
20 — 30	- - -	13
30 — 40	- - -	11
40 — 50	- - -	16
50 — 60	- - -	10
60 — 70	- - -	6
70 — 80	- - -	1

"In a table of 1000 cases of hydrocele treated by iodine injection at the Native Hospital of Calcutta, it appears that none of the patients operated on were less than eighteen years of age; about one twenty-fourth were not more than twenty years old; rather more than a sixteenth were from twenty-one to twenty-five years of age; a little less than half from twenty-eight to thirty-five; a little more than a quarter from thirty-six to forty-five; and an eighteenth were upwards of forty-six years."

Mr. Curling's remarks on the causes which lead to the frequency of Hydrocele are judicious. He observes;—"All circumstances which determine blood to the organ in excess, or impede its return to the heart, or which act in any way in disturbing the circulation through the gland, must be regarded as remote causes of the disease; and, considering the exposed and depending situation of the testicle, the liability of its vessels to obstruction, and the irregular nature of its functions, there can be no difficulty in accounting for the frequency of this affection. I shall hereafter have occasion to mention that hydrocele is often combined with inguinal hernia; a disease obviously very favourable to the effusion of serum in the tunica vaginalis, owing to the pressure of the rupture on the veins of the spermatic cord, and which is often increased by the use of trusses and bandages. Hydrocele is occasionally developed after a violent strain or great fatigue, or after a slight blow on the gland which was considered at the time to be too trivial to require attention. In many of these cases the effusion appears to originate in a low degree of inflammation of the tunica vaginalis. I have already stated that marks of previous inflammation are occasionally observed in the sacs of hydroceles. On examining the body of a man aged forty-nine, who died of apoplexy, I found about two ounces of serum in the vaginal sac of both testes, and also several old adhesions, and some spots of induration and thickening of the testicular portion of the membrane. I have observed similar appearances in other cases of incipient hydrocele, as well as imperfect multilocular cavities and septa, and induration, and enlargement of the epididymis, clearly evincing that the part had been the seat of inflammation. In some few instances I have met with hydrocele under circumstances which have led me to

suspect that the disease was connected with, or sympathetic of, a chronic affection of the urethra, as stricture and morbid irritation in the canal. Hydrocele occasionally results from the irritation produced by loose accidental bodies in the tunica vaginalis, which are more frequently present than is generally supposed. In disturbed states of the circulation from disease of the heart, the tunica vaginalis is not so frequently the seat of dropsical effusion as the other serous membranes, with the exception of the arachnoid; but this is partly owing to the pressure exerted around the testis by the accumulation of fluid in the cells of the scrotum, and the relief to the spermatic vessels afforded by the œdema. In cases, however, of general anasarca, I have very frequently found slight effusion into the vaginal sac combined with œdema of the scrotum."

We have observed the combination of hydrocele with general dropsy rather more frequently, we think, than Mr. Curling appears to have done. Still it is not so common as, perhaps, might have been anticipated.

Mr. Curling is of opinion, and we quite agree with him, that, in spite of the disparaging remarks of Mr. Pott, the transparency of hydrocele is a very valuable sign. True, it is not always present, in consequence of thickening of the tunica vagnalis, &c.; but it is generally so, and affords the surgeon great assistance. Why should he neglect so ready and so valuable a means of diagnosis?

"In cases in which the parietes of the cyst are unusually thick, or the fluid is very dark-coloured, I have sometimes derived considerable assistance from using a wooden tube, about three quarters of an inch in diameter, open at both extremities. One end being placed against the swelling opposite the light, the surgeon, on looking through the other, can observe the transparency with great advantage. If a more convenient tube be not at hand, a roll of writing paper will answer the purpose. The growth of a hydrocele is occasionally attended with a good deal of local uneasiness, which has been ascribed to pressure on a nerve, or to the presence of accidental cartilages in the cyst. I have generally found, when pain exists, that the dropsical collection has originated in and been kept up by some disease of the testis. A hydrocele sometimes varies in size, being larger and more tense in the after part of the day than when the patient first rises in the morning. I have not exactly observed this change; but it has been so often mentioned to me by persons affected with hydrocele, that I entertain no doubt of the fact; and since the extent of surface afforded by the dilated tunica vaginalis is large, and the condition of the parts during day and night very different, such variations in size consequent upon alterations in the functions of secretion and absorption do not appear at all unlikely to occur. I have been informed of a case in which the change was so remarkable that the scrotum, which was full and tense when the patient retired to rest, became contracted and corrugated by the time he rose in the morning." 139.

In doubtful cases, we quite agree with Mr. Curling on the propriety of making an exploratory puncture with a grooved needle or a trocar. Mr. Curling observes:—

"I once met with an indolent tumour of small size in the scrotum of an old man, which was so irregular and uneven, felt so solid, and weighed so heavy, that it was impossible to determine exactly whether the swelling was occasioned by a morbid enlargement of the gland, a hæmatocele, or a hydrocele with the sac unusually thickened and indurated. The age of the patient was such as to put an operation out of the question. He subsequently died of disease of the

chest; and, on examination, I found the tumour to consist of a hydrocele, the sac of which was cartilaginous and much thickened, and the contents a soft oleaginous kind of substance, consisting chiefly of cholesterine. The nature of such a swelling could only have been clearly astertained by a puncture. The difficulty of the diagnosis, in cases of cartilaginous thickening of the tunica vaginalis, has been attested by Dupuytren. In a case of enlargement and induration of the left testicle, attended with lancinating pains in the groin and loins, and much emaciation, symptoms expressive of scirrhous disease, and unaccompanied with any sign indicative of hydrocele, or scrofulous or venereal disease, this distinguished surgeon, to avoid all chance of error, made an exploratory puncture. The result showed the prudence of this precaution; for, instead of scirrhus, the case was found to be a hydrocele, with cartilaginous thickening of the tunica vaginalis." 142.

It is, or rather it *was* a little while ago, the fashion to abuse the grooved needle and its employment. They may dispense with it who never make mistakes, though, such, in our opinion, are yet to make their appearance. Ordinary mortals had better use all the means in their power to avoid blunders, and this is one of the number.

But the grooved needle may deceive. A man had symptoms of suppuration in the tunica vaginalis testis. The grooved needle was introduced, and only serous fluid filled the hollow of it. The symptoms however grew worse, and an incision was made. It was found that pus had gravitated to the bottom of the tunic, the serum being supernatant. It was the latter that the grooved needle *tapped*.

Mr. Curling thus treats hydrocele in infants:—

"In these cases, all that is necessary in the way of treatment is a stimulating application, and support to the scrotum with a bandage. A lotion composed of an ounce of the hydro-chlorate of ammonia, four ounces of distilled vinegar, and six ounces of water, will generally cause the removal of the fluid. In many instances I have found it quickly dissappear by occasionally painting the scrotum with the tincture of iodine. If the hydrocele does not disperse under this treatment in the course of two or three weeks, the tumour may be pricked with a cataract needle, which will allow the greater part of the fluid to drain away. This is the only operation that I ever found necessary in treating hydrocele in infants; and even acupuncture, which is a mild proceeding, and devoid of danger, is seldom required." 145.

Mr. Curling, speaking of tapping hydrocele, gives a hint on the state of the trocar. In selecting, he says, an instrument, the surgeon should see that the canula fits properly, and that its shoulder does not project too much; or else, after the point of the trocar has penetrated the cyst, the canula may hitch outside it, and, instead of entering the cavity, push the tunica vaginalis before it. In such a case, if the accident be not perceived in time, the testis or the back part of the cyst is very liable to be wounded. The trocar before being used should be thrust through a piece of wash-leather held tense, and unless it penetrates readily the instrument is unfit for use.

We would make another remark on the subject of trocars. In *injecting* a hydrocele, the surgeon should be careful that the *eye* of the canula is is fairly within the tunica vaginalis. If it is not, some of the injection is apt to escape laterally through the eye, and to be forced into the cellular membrane.

Mr. Curling prefers the patient standing before him. So do we. But brave as he may seem, he is apt to grow faint and tumble forwards, which is awkward.

Mr. C. observes:—"The patient should be enjoined not to walk about much for the next twenty-four hours, and to abstain from active exercise for a day or two; a precaution which is more especially necessary in individuals of an irritable or unhealthy constitution, or in advanced life. If this advice be neglected, acute inflammation of the tunica vaginalis is liable to succeed the operation. Some years ago I tapped the hydrocele of a healthy man fifty years of age, who, notwithstanding the caution I had given him, walked several miles the same afternoon; the consequence was severe inflammation of the sac, followed by sloughing of the scrotum. After much suffering he recovered at the expiration of eight weeks, with the disease permanently cured. At a later period of life, if proper precautions be not taken, the palliative operation can scarcely be viewed as free from danger. Sir A. Cooper mentions two cases of persons in advanced age, who having taken a long walk after the operation, had inflammation and sloughing of the scrotum, which terminated fatally."

Suppuration in the tunic and diffuse inflammation of the cellular membrane of the scrotum are more frequent consequences of operations for hydrocele of all sorts, than is commonly imagined. We have seen several instances of both.

The following is Mr. Curling's mode of performing acupuncture of the hydrocele.

"I employ the common cataract needle, which I usually introduce in two or three different places, rotating the instrument between the finger and thumb to render the openings in the sac sufficiently patent. A little serum generally oozes out from the puncture in the skin in drops, or issues in a stream for a few seconds, and then ceases. In the course of a few hours the scrotal swelling becomes a good deal changed, and instead of a tense, smooth, and defined tumour presents an œdematous tumefaction, with a soft, doughy, and inelastic feel. In large hydroceles the œdema extends to the integuments of the penis. The swelling thus produced takes from three days to a week gradually to disappear, the scrotum in favourable cases being left in its natural condition, without any excess of fluid either in its loose cellular tissue or in the sac of the tunica vaginalis. The operation may be repeated again and again as the fluid returns, on each occasion before the tumor has acquired the same size as on the preceding one, by which means the sac may sometimes be gradually reduced to its natural size." 154.

His estimate of the value of the operation is a candid one;—"Acupuncture must be regarded, upon the whole, as a useful addition to our remedial measures for the treatment of hydrocele. It does not supersede the use of the trocar; for the latter is scarcely more painful or less simple, and in careful hands is equally safe and free from hazard, whilst the immediate and certain relief which the trocar affords will always give it an advantage. Acupuncture, too, is ill adapted for cases of thickened sac; and the chance of permanent benefit which it offers is too slight to add much to its value as a means of treatment. In very timid persons, in those of impaired constitutions, and in children, and in some other forms of hydrocele not yet described, acupuncture may be resorted to with benefit and even preferred to the trocar. I am informed by Mr. Luke, that in

the case of a gentleman who was about to proceed to a place in South America, where there would be no surgeon nearer his residence than 400 or 500 miles, he instructed his patient to perform this simple and harmless operation on himself."

Turning to the Radical Cure of Hydrocele, and speaking of Incision of the Sac, Mr. Curling states :—

"My brother, Mr. H. Curling, of Ramsgate, informs me that when in Paris he witnessed several cases of hydrocele cured by incision by Jobert; but the treatment proved very severe, and confined the patients to bed for a long time. I have myself seen three cases of this disease attended with considerable thickening of the sac, which, after injections had failed, were successfully treated by incisions; and certainly the consequences were less severe than the representations of Sharp and Pott would lead us to expect: but in these cases the tunica vaginalis was evidently less disposed to inflammation than usual." 157.

No doubt, however, it is a severe operation, and fit only for an exceptional one.

The *tent* has been more frequently employed than many practitioners may, possibly, suppose. Baron Larrey's plan was, after drawing off the fluid by means of a trocar, to pass a piece of gum elastic catheter through the canula into the interior of the tunica vaginalis, and to leave it there until sufficient inflammation to procure adhesion was excited. He speaks of this proceeding as being as mild as it is certain. "Such has not proved to be the case in other hands; and this, as well as the other forms of the tent, are in the present day rarely resorted to."

We are disposed to think more favourably of the tent than this. If introduced for a short time, say an hour, it is far from a severe remedy, and far from an unsuccessful one. A piece of gum catheter is the best.

Mr. Green has recently recommended the *seton*. His mode of performing the operation is nearly the same as that employed by Mr. Pott; but there is this important difference, that the seton is retained a much shorter period, the average time being twenty-four hours, though it will vary in different instances. In three of the eight cases treated on this plan which are reported, the re-introduction of the seton was necessary. In one case the cellular tissue of the scrotum suppurated, and in another an abscess formed in the vaginal membrane; both required to be punctured. In two instances the seton was obliged to be removed in a few hours, on account of the excessive pain which it produced. In the only three cases in which the seton operated mildly as well as successfully, one was cured in twenty-seven days, another in twenty-nine, and a third in about a fortnight. Certainly the results are not very encouraging.

Mr. Curling adopts the following precautions after injecting a hydrocele. We should observe, by the way, that the injection he prefers is lime-water, of which he speaks in flattering terms. But to the after treatment.

"My own experience does not incline me to rely much on the prudence of the patient in regulating the measures to be pursued after an operation. If, as generally happens, symptoms of inflammation arise in the course of a few hours, I usually recommend the use of a suspender to keep the testis supported, and direct the patient to remain in the recumbent position until the acute symptoms begin to subside. If these precautions be neglected, there is risk of more in-

flammation being excited than is necessary. Should no symptoms of inflammatory action be evinced in the course of eight or twelve hours, the patient should he encouraged to move about; and the testis may be handled so as to occasion slight friction between the surfaces of the tunica vaginalis, in order to induce the requisite vascular excitement. If the swelling should become considerable, and the pain and constitutional disturbance be great, the activity of the inflammation must be moderated by leeches, saline purgatives, or tartar emetic, as in the treatment of acute orchitis. It sometimes happens that the inflammation goes on to suppuration, and occasions an abscess in the tunica vaginalis. I have never witnessed this; but when it occurs, an incision must be made through the integuments and sac, in order to permit the free escape of the pus. Granulation will then ensue, and the cavity of the tunica vaginalis will become completely and permanently obliterated. Sir B. Brodie remarks, that he has never known suppuration to occur after the operation by injection, except in West Indians, and in them only in three out of a great number of cases. In these cases the injected fluid was not made stronger than usual, but was even retained a shorter time—in one case only a single minute—and yet the inflammation was excessive; there was violent pain, and great constitutional disturbance. It may be well to bear this observation in mind, so that in operating on persons from warm climates the injections may be of a mild character." 171.

We apprehend that suppuration in the tunica vaginalis is more common than Mr. Curling states. Be that as it may, we are sure that some care is necessary after the operation, and that the off-hand directions of Sir Astley Cooper are anything but judicious or safe.

Mr. Curling very properly recommends a careful examination of the state of the testis prior to using an injection. He observes:—"A man was admitted into the London Hospital with a double hydrocele on purpose to undergo the operation for the radical cure. He had been suffering for some time previously from disease of the larynx, which increased soon after his admission, and caused suffocation and death. On examination of the testes, deposits of concrete pus were found in the substance of both the glands. In this case, had his state of health permitted of an operation, after removal of the fluid the diseased condition of the testes would probably have been detected, and injection, which could only have operated injuriously, would have been abandoned. The fluid effused around the diseased testis, by producing pressure, sometimes causes pain, and it may then be evacuated with benefit; but I need scarcely add, that to attempt the permanent removal of the hydrocele whilst the original disease remains unsubdued, would be both fruitless and hurtful. The disease producing the enlargement of the gland must be treated without reference to the effusion, and it will commonly be found that, as the affection of the testis subsides, the hydrocele likewise disappears."

Mr. Curling states, that even when the injection *is* unfortunately thrown into the cellular membrane of the scrotum, bad consequences do not always follow. He has known two instances in which there were no mischievous results.

Iodine Injections, as most of our readers are aware, were first tried by Mr. Martin, of Calcutta, now practising in London. He used the tincture in the proportion of ℥ ij.—℥ vj. of water; injected only a small quantity; and instead of afterwards withdrawing the fluid, allowed it to remain in the sac, to be removed by absorption. In a recent report of cases of

hydrocele thus treated at the Native Hospital of Calcutta, it is stated that from the 9th of March, 1832, to 31st of December, 1839, 2393 cases were under treatment. Of these—

1265	were	Hindus,
1076	"	Mahomedans,
52	"	Christians.
2393		

And it appears that the failures were rather under one per cent.; a result which must be regarded as remarkably successful. The success and safety of iodine injections must be in a great measure attributed to only a small quantity of fluid having been thrown into the sac, so that risk of cellular effusion was avoided, and to the retention of the fluid insuring the excitement of sufficient inflammation to cure the disease.

European surgeons have tried this plan, some with more, some with less success, their report being, on the whole, favourable. Their real value, compared with other injections, is not yet determined.

With the following sensible remarks, Mr. Curling concludes the subject of simple hydroceles of the testis.

'A careful examination into the merits of the various modes of effecting the radical cure of hydrocele, fully establishes the superiority of the treatment by injection. The great error formerly committed by surgeons in endeavouring to excite a high degree of inflammation, arose from a mistaken view of the object to be attained; for not perceiving that the exundant secretion could be arrested by altering the action of the vessels of the part, they thought it necessary to obtain the obliteration of the natural cavity, which, moreover, they endeavoured to effect by producing suppurative inflammation of the membrane, instead of by the milder process of adhesion. In recent days, surgeons have sought to improve the treatment of hydrocele, by reducing the amount of inflammation to the lowest possible standard, and have nearly fallen into the opposite error of suggesting plans too mild to be efficacious and sure. Injection has now been largely tried in this and other countries; and experience warrants us in asserting that though it is not an infallible remedy, of all the plans hitherto practised it combines the greatest number of advantages. The pain attending it is slight; its effects are mild, and at the same time tolerably sure; if properly performed, it is free from danger; and it frequently succeeds without altering the natural condition of the parts. I know it is a question whether the cure by adhesion, though less perfect than that in which the disposition merely of the vessels is changed, is not upon the whole preferable. In the latter there is a possibility, if not a probability, of a relapse at some future period, many of the causes conducing to hydrocele still remaining; whilst the inconvenience produced by an impediment to the free movements of the testis, in cases cured by adhesion, is regarded as too trivial to be any disadvantage. But, in the absence of data showing the degree to which the disease is liable to return after the cure without adhesion, I feel perfectly satisfied with such a result, and much prefer leaving a patient exposed to the doubtful chance of a relapse, than subjecting him to severer treatment in order to make sure of exciting sufficient inflammation to secure adhesion and obliteration of the sac. Injections, however, are not capable of effecting a cure in every case, nor are they adapted for every constitution." 180.

CONGENITAL HYDROCELE.

The only remark on this head that we need notice, is the following;—

"There is rather a rare variety of congenital hydrocele, in which the testicle is retained in the abdomen or inguinal canal, whilst the peritoneum, prolonged for a short distance into the scrotum, forms the cyst containing the fluid which is covered only by the integuments and superficial fascia. A hydrocele presenting the same characters as the congenital sometimes follows a late descent of the testicle, unaccompanied with a hernial descent. This is also a case of rare occurrence; but I once met with an instance in a lad eighteen years of age."

Mr. Curling very properly discountenances injecting congenital hydrocele. The fluid may, by pressure, by prevented from flowing into the abdomen, but that may not prevent the extension of the subsequent inflammation.

Encysted Hydrocele of the Testis.

The varieties of this are the following:—"The cyst is composed of a thin delicate serous membrane; it may be developed in three situations; 1. beneath that part of the tunica vaginalis investing the epididymis; 2. between the tunica vaginalis testis and tunica albuginea, which are thus separated from each other; 3. between the layers of the outer or loose portion of the tunica vaginalis. The first is by far the most common situation, the two latter being very rare. These cysts are analogous to the aqueous encysted tumors which are developed in the kidney and other parts, the fluid being of a similar nature, and differing from that of simple hydrocele in being perfectly limpid and colourless, and containing no or only a slight trace of albumen, so that it does not coagulate on the application of heat or by the action of acids."

Mr. Curling's account of Encysted Hydrocele of the Epididymis is good.

"Small serous cysts," he says, "not larger than a pea, and even smaller, frequently exist immediately beneath the tunica vaginalis covering the head of the epididymis, in which they produce a slight depression. In several instances I have found as many as five or six perfectly distinct cysts connected with this part. Sometimes one or two small cysts of this kind are so embedded in the substance of the epididymis, that they cannot be recognised without dissection. Though these minute cysts generally contain a limpid serum, I have found them filled with fluid of a milky hue, and I have even observed matter like pus tinged with blood. These accidental cysts, developed in the upper part of the epididymis, sometimes project the tunica vaginalis before them until they become so far separated from the part where they were originally formed, as to be attached only by a narrow peduncle formed by the contracted tunica vaginalis. Such is the mode of development of those small pendulous pedunculated cysts, containing an aqueous fluid often found hanging from the head of the epipidymis, which were erroneously supposed by Morgagni to be hydatids. I have on many occasions observed them in the different stages of their production. Thus I have seen a pedunculated cyst attached at one part, whilst close to it there was a serous cyst precisely similar embedded in the substance of the epididymis. In other instances I have found the cyst very prominent, but still connected by a broad attachment of the tunica vaginalis reflected over it, the membrane not having as yet contracted to form the narrow neck. In all these cases the prolongation of the tunica vaginalis investing the cyst could always be demonstrated by a little cautious dissection, and between this membrane and the cyst some minute red blood-vessels were generally seen ramifying. These pedunculated cysts never acquire a large size; I have seldom found them to exceed that of a currant. From the exposed situation of the testis, they are liable to be ruptured,

the vestiges of them consisting of fimbriated folds of membrane; but this is not a common occurrence. I have seen the delicate peduncle by which the cyst was attached as long as three quarters of an inch.

So common are small serous cysts connected with the epididymis in the various states and stages I have described, that no one can examine many testes without finding them. Now when one or more of these cysts, instead of becoming pedunculated, enlarge so as to form an evident tumour in the scrotum, they constitute a form of hydrocele called, from its original seat, an *encysted hydrocele of the epididymis*. I have observed this description of hydrocele in all its various modifications, from the enlargement simply of a single cyst to the complication occasioned by the varied dilatation of several of them. In this form of hydrocele the epididymis becomes flattened, and is displaced to one side, whilst the testis is found either in front of the cyst or cysts, or at the bottom of them. It is sometimes at the side, but very rarely indeed at the posterior part of the swelling."

"The tumor is generally of smaller size than a simple hydrocele, the fluid seldom exceeding three or four ounces in quantity. In a case, however, which I saw with Mr. Crowdy of Brixton, as much as twenty ounces were removed from a single cyst. When the hydrocele is composed of several cysts, they are seldom of large size, but form a cluster more or less complicated and irregular, according to their number." 168.

The cysts are liable to inflammation and its consequences, an albuminous state of the fluid, lymph, &c. in the cyst. Or this may contain blood, and form a variety of hæmatocele.

2. *Hydrocele between the Tunica Vaginalis Testis and the Tunica Albuginea.* The cyst is usually single and small. It is rare. Mr. Curling has seen one instance of it. Sir B. Brodie has described one.

"In examining a healthy testis I once found six or seven small serous cysts, about the size of currants, studding the surface of the loose portion of the tunica vaginalis. Two of them were situated in a part of the membrane extending up the cord. They projected internally, and contained a transparent fluid. I have since seen a similar kind of cyst, the size of a large pea, in the same portion of the tunica vaginalis. Accidental serous cysts have also been observed in the sac of a simple hydrocele, and a preparation of this kind is contained in the museum of the College of Surgeons. If a cyst thus situated were to increase to any size, it would constitute a swelling which might be appropriately termed an *encysted hydrocele of the tunica vaginalis*." 190.

Diagnosis.—This is not, always, perhaps, practicable. Encysted hydrocele of the testis may, however, be said to be distinguishable from simple hydrocele by the different position of the gland, which is generally found in front or at one side of the tumor; by the smaller size of the swelling; and by the limpid and colourless character of the fluid evacuated. When the hydrocele consists of two or more cysts, fluctuation and transparency are also less distinct than in simple hydrocele. The common experimentum crucis will be the puncture.

Treatment.—For palliation, when the cyst attains any size, acupuncture or the trocar—when the radical treatment is *necessary*, the seton, injections not answering so well as in simple hydrocele.

There is so much in this volume to engage attention, that we shall return to it in our next number, and complete our account of its contents. In the mean time we can confidently recommend it to our readers.

The Oculist's Vade-Mecum: A Complete Practical System of Ophthalmic Surgery. With numerous Wood-cuts and Coloured Engravings of the Diseases and Operations on the Eye. By *John Walker*, Surgeon to the Manchester Eye Hospital, &c. London, Longman and Co. Pp. 400. 12mo.

The volume before us is intended to supply the profession with a clear, condensed, practical account of the present state of ophthalmic pathology and practice, especially adapted to the wants of the student and busy practitioner. Mr. Walker is already favourably known to the profession as a diligent cultivator of this interesting department of medicine—having published a valuable course of lectures in the "Lancet," and some interesting works and essays at different periods. He is, therefore, well qualified for the task he has undertaken.

We find, on comparison, that the Oculist's Vade-mecum is composed of the lectures already mentioned, with some slight additions and alterations. We will allow Mr. Walker to explain his own reasons for collecting and publishing them in their present form.

> "Notwithstanding," he remarks, "the existence of a considerable number of books on Diseases of the Eye, there still appears room for one whose special object is to afford *practical* information to the student, the young practitioner, and him whose active engagements render impossible the study of the more voluminous publications with which this branch of medical science has been enriched—the works of Mackenzie, Guthrie, Middlemore, Lawrence, Wardrop, and others—not to mention a long list of German and other foreign names, who have done much for its advancement. To give to the work that practical character, the account of the various diseases has been illustrated by a selection of some of the most important cases, which an extensive experience, acquired during twenty years of observation and practice in this branch of surgery, has afforded. It would have been easy to have enlarged the scope of the present publication: the difficulty consisted in making a judicious selection of such points as are most likely to interest the busy practitioner, and furnish him, in a somewhat condensed form, with that useful information, which he requires. The pictorial illustrations, explanatory of the more important diseases, and of the principal operations, will, it is hoped, add materially to the value of the work; and, with the written descriptions, constitute a faithful representation and record of the present state of Ophthalmic Surgery."—*Preface.*

There can be no doubt that a book of this description will prove a valuable boon to the profession—especially the student and busy practitioner—but we cannot agree with our author that it will be equally valuable to the junior practitioner. The commencement of practice furnishes, in general, abundance of time and opportunity for the perusal and digestion of more minute and voluminous treatises, and, above all, the more able and practical Monographs, Essays, and Dissertations—which often constitute the most valuable parts of medical literature.

A complete analysis of such a volume as the present, is, of course, out of the question; we shall content ourselves, by extracting such portions as are either most interesting, original, or practical. Our author, after stating that, "in chronic ophthalmia, the conjunctival vessels appear to be distended and relaxed, and not to be possessed of their natural amount of tonic

power," remarks, that "the object to be kept in view, in treating a case of this description, is to restore the weakened vessels from their relaxed and enlarged condition, to their normal tone and calibre. How is this object best accomplished? Assuredly not by the use of leeches, blisters, and purgatives."—p. 14. These remarks appear to us somewhat prejudiced and one-sided, and the most successful practitioners will we think concur with us that our treatment can only be determined by the features of each individual case. In the words of Dr. Hocken (Lancet Vol. ii,—1842-3, p. 687), "we can only judge what is the best plan of treatment by attending to the actual conditions of the case—the history, and the general and local symptoms. We may meet with two cases of ophthalmia, of equal duration, but we must not on that account pursue a routine course for 'chronic' inflammation; for one case may present passive features, with a deranged and depressed condition of the general health, whilst the other may be active, with inflammatory fever. A routine practitioner does not trouble himself about these differences—he either depletes or stimulates both; one is cured whilst the other is rendered inveterate under his hands."

In the more severe and protracted cases the author recommends the application of either the nitrate of silver or the sulphate of copper in substance to the conjunctival surface of the lower lid.

"*Nitrate of Silver.*—The application of the nitrate of silver in substance is easily made, and is by far the most efficacious remedy I am acquainted with, for chronic ophthalmia. Expose the conjunctival surface of the inferior eyelid, by manipulating as before directed, and then draw the nitrate of silver, pointed like a pencil, *lightly* across it. The portion of conjunctiva touched, immediately becomes white, from the tears acting upon the nitrate of silver and producing, it is said, a muriate of silver. The application is always productive of a great increase in the lachrymal discharge, and is very generally followed by a severe smarting or burning sensation, which usually continues from *half an hour to three or four hours.* At the expiration of that period the uneasiness subsides, and a decided improvement is soon perceptible in the condition of the eye."

"*Sulphate of Copper.*—The application of the sulphate of copper in substance is also frequently productive of beneficial results; and, although much milder in its action than nitrate of silver, this remedy will generally be sufficiently powerful in the slighter cases of chronic conjunctivitis. It is to be applied in the same manner as the nitrate of silver; with this difference, that it should be kept in contact with the conjunctival membrane *for a few seconds*, which the patient will usually bear without much complaining. A small portion of the sulphate appears to be dissolved by the lachrymal fluid, as this fluid is generally perceived to be tinged of a blue colour, after the use of this substance." 15.

If compelled to employ these powerful remedies directly to the delicate surface of the conjunctiva, we should certainly prefer them in substance to strong solutions, as, according to our experience, they act more beneficially, and, if persisted in, are less likely to occasion a granular change. We are compelled, however, to enter our protest against the practice altogether—except where there is a tolerably free secretion of mucus or pus from the membrane—first, because it invariably occasions severe pain and distress, which lasts for a considerable time—from half an hour to three or four hours;—secondly, because it is quite unnecessary—the disease being more

quickly, safely, and pleasantly cured by other means, quite independent of the excessive bleeding, purging and mercurialization reprobated by the author; and thirdly, because if the remedy be persisted in, and used without excessive caution and matured judgment, it is very apt to occasion a disease much severer and more intractable than the primary complaint, viz. granular conjunctiva. We offer these opinions not as theories but as facts, having ourselves commenced practice, strongly prejudiced in favour of the nitrate of silver, and it was not until after witnessing repeatedly the agony it almost invariably occasioned,—the mean duration of which was certainly from two to three hours,—and the numerous cases of augmented inflammation, and granular disease which resulted from frequent and indiscriminate use, that we opened our eyes to what we are now fully convinced is the truth, viz. that it is applicable only to those diseases which are attended with a pretty free discharge of muco pus.

Ulceration from Nitrate of Silver.—"There is one effect," says our author, "which I have sometimes observed to result from the use of nitrate of silver, which it is proper to mention before dismissing the subject of the local treatment of chronic ophthalmia. I mean superficial ulceration of the conjunctiva. In the vast majority of cases, this ulceration is followed by no disagreeable consequences—it is a matter of no importance; indeed, in some instances, it is probable that it may be rather beneficial than the contrary. Yet it occasionally happens that slight inversion of the lid results from it."

As far as we have seen, all the beneficial, without any of the evil effects of the nitrate, are obtained by applying the remedy to the outside of the lids instead of to the conjunctival lining. On this subject the author remarks.

"Mr. Higginbottom, the author of a valuable work on the use of nitrate of silver, recommends the application of this substance to the outer surface of the palpebræ. This mode of applying nitrate of silver has also recently been advocated by Mr. Wormald and Dr. Hocken, in the treatment of some forms of ophthalmia. This would be very proper if we could not obtain access to their conjunctival surface; but as this can always be accomplished without difficulty, it is obviously the part to which the remedy is to be applied."

The author has displayed not a little prejudice and want of correct information in the foregoing passage. We have carefully looked through the excellent little volume of Mr. Higginbottom, and feel persuaded that even the *idea* of using the remedy externally for the *cure of diseases of the eye* had never even suggested itself to his mind, much less had he put the plan in practice. He mentions, indeed, having used the remedy in erysipelas of the face "near the right eye," and in another case of the same disease he says, "I applied the nitrate of silver, as in the former case, upon and beyond the inflamed surface, except on the eyelids; having found it in former cases, when applied to that part, to occasion a considerable flow of tears, which, passing over the escharred surface, is rather troublesome, inducing excoriation." Again at p. 175, he mentions a case of "irritable ulceration *near the eye* which was much benefitted by this treatment." It is obvious, however, that ulceration near the eye, or erysipelas of the face, have nothing to do with our present points of consideration. So much for want of correct information; our second charge is that of prejudice.

It is quite clear that the author has never even given the external appli-

cation of the nitrate a trial, much less has he instituted an unprejudiced comparison between the benefits to be obtained by its external and internal use—its application to the integument of the eyelids, and to the surface of the conjunctiva—and carefully weighed the disadvantages which may attend either. Even allowing that both modes of use were equally beneficial, it is obvious that the external application is a much more simple operation and one more easily performed; but when it is considered that very slight and transient irritation attends this plan, and severe and protracted agony its application to the conjunctiva, and that the former never occasions any injurious consequences, whilst the latter, without great care and judgment *often* does, that person must be prejudiced indeed who refuses to try a plan so simple, and safe, and the beneficial effects of which rest on such good authority, and extensive experience. Starting ourselves with a prejudice in favour of the application of the nitrate of silver to the conjunctiva itself, we have carefully weighed the advantages and disadvantages of its external and internal use, and unequivocally declare our firm conviction of the decided superiority of the former plan.

The author's objection to this is, moreover, not very logical. "This," he remarks, "would be very proper if we could not obtain access to the conjunctival surface, but as this can always be accomplished without difficulty, it is obviously the part to which the remedy is to be applied."

Q. Why is the conjunctiva the part to which the remedy ought to be applied? A. Because it can always be done without difficulty! But notwithstanding this specious reasoning, we think the external use very proper, notwithstanding the easy—often too easy—access to the conjunctival surface.

Our author gives some good advice on the

Mode of applying Local Remedies.

"It is," he remarks, "rarely necessary to apply stimulants to the conjunctiva of the superior eyelid; because in simple conjunctival inflammation we seldom find that it participates to any considerable extent in the general inflammatory condition of the membrane (!); and it is the less necessary as the effect produced by their application to the lower one becomes diffused over the whole conjunctival surface by the winking motions. Indeed, the conjunctiva of the lower lid ought to be the recipient of all the local stimulants employed in chronic ophthalmia. If we prescribe a stimulating lotion or ointment, but little good can be expected to result from its use if this be not brought into actual contact with it; and as we know how seldom applications of this kind are properly used by patients, there is the greater necessity for the surgeon himself frequently to apply something on which he can depend for producing the proper impression. If the application of the stimulant fluids be entrusted to patients, or their attendants, strict injunctions should be given as to their efficient use. The lower eyelid ought to be depressed and everted, and a camel-hair pencil saturated with the fluid, should then be drawn across its conjunctival surface. If an ointment be recommended it should be first melted, and then applied in the same manner. In milder cases, the fluid may be dropped upon the conjunctiva oculi, or the ointment smeared upon the tarsal margins, but neither of these is so effective a means as the former."

Congenital Ophthalmia.

"This extraordinary case I will state a little in detail, since, as far as I know, there is no similar one on record, although, probably, others must have occasionally occurred.

"*Case.*—Mrs. T.'s child, when first brought under my notice, was six months old, and the mother, a very intelligent person, informed me that, at the time of birth, his eyes exhibited the same appearances as were now observable. The disease had run through its entire course previously to birth, for, according to her account, there was no puriform discharge, inflammation, or intolerance of light, noticed at any time subsequently. The cornea of one eye had completely sloughed, the eyeball had sunk, and, of course, not the slightest vision existed. More than one-half of the cornea of the other eye was opaque; through the remaining transparent portion a part of the pupil could be discerned, and the iris and cornea appeared almost in contact. The transparency gradually extended, and more of the pupil became accessible to light; thence, though vision was very imperfect, when I last saw the child, yet it appeared to be gradually improving."

The phenomena of this case are certainly peculiar, and seem to warrant the author in stating that, "after duly considering how perfectly the phenomena presented by the eyes of this child agree with those met with as results of purulent ophthalmia, attacking infants after birth, I think that no reasonable doubt can be entertained that they were occasioned by purulent ophthalmia which occurred before birth."

Strumous Ophthalmia.

We fully agree with our author that the morbid sensibility to light, so strikingly manifested in this disease, is most erroneously attributed to a sympathetic affection of the retina. The same train of symptoms which characterise this disease, are temporarily produced by the intrusion of a particle of dust underneath the upper lid; in which case, it is obvious that all the symptoms must depend entirely on irritation of the conjunctival filaments of the ophthalmic division of the fifth pair of nerves.

"My own opinion," says our author, "is, that sensibility to light, whether healthy or morbid, is to be referred to the fifth pair of nerves rather than to the retina. The retina I regard as simply the recipient of visual impressions. This is a subject which it would be obviously improper to enter upon here in detail; but I may relate a case which is interesting, in a practical point of view, and will serve to illustrate the distinction I have endeavoured to establish." 72.

In this case all the parts supplied by the fifth pair of nerves were paralysed on one side of the face. Taste was much impaired, but the eyes, with the exception of the inability to close the right eyelids, were perfectly healthy in appearance, and vision was perfect in both eyes. The author placed this patient before a very brilliant flame from a gas-burner. "The effect was very striking, for the left eye could not bear for a single

instant the exposure to so vivid a light, whilst the opposite eye (that of the paralysed side,) when placed close to it, was *completely insensible to its irritating influence*. He was treated on the combined antiphlogistic and mercurial plan, and speedily recovered. It was interesting to observe that, as common sensibility was restored, the eye became again susceptible of the irritating influence of light."

It was suggested by Dr. Hocken, in an Essay in the Lancet, (vol. i. 1842-3, p. 285,) that the retina itself is in direct communication with the fifth, through the medium of filaments, distributed with those of the optic nerve—not as Magendie thought, the actual nerve of vision, but the source of common sensibility to light, and the medium of impressions on the pupil, through the lenticular ganglion. The experiments of Fontana prove that the mere action of light on the iris is insufficient to produce contractions of the pupil unless the retina be simultaneously affected, whilst daily experience proves that the pupil contracts to a fine point from the mere influence of mechanical irritation of the conjunctiva. Dr. Hocken combining these facts with our author's interesting case just alluded to—of insensibility to light of the eye of the paralysed side whilst vision was perfect—some of Magendie's experiments, and, on the contrary, those cases of complete amaurosis, where the iris moves actively and freely, and where the patients can tell by their sensations the difference between light and darkness, without being able to see at all, remarks that—"These cases appear to dissect, as it were, the different portions of the retina, and show its separate functions; (in the latter,) the true retina is paralysed by disease in some part of the visual nervous system, whilst the sensitive functions of the fifth, and the motor of the third nerves remain intact," and in the former vice versa.

PTERYGIUM.

Our author agrees with Mr. Guthrie that Scarpa's hypothesis—that the resistance to the progress of pterygium upon the cornea is owing to the increasing adhesion between the conjunctival covering and the cornea itself, and that, on its arriving at the centre, the mechanical resistance is so excessive that it cannot be overcome, and that thus the further progress of a pterygium is stopped—" although it may appear sufficiently plausible, is so unsatisfactory, that the problem is still open for the exercise of further ingenuity."

The author's suggested explanation is, that the conjunctiva receives blood from four distinct sources, each of which separately supplies one-fourth of the membrane, to a certain extent, independently of each other. These vessels pass into the substance of the conjunctiva at four distinct points—viz. one at each angle, and at the superior and inferior portions of the globe. In pterygium, these vessels, at which ever of the four sides the disease happens to be developed, proceed from that portion of the periphery of the conjunctival surface of the globe, and pass on towards, and upon the cornea to its centre, beyond which they never extend; thus occupying and being limited to one-fourth of the conjunctival surface, and therefore imparting to the diseased structure a triangular shape.

How would the author, however, explain such cases as Mr. Tyrrell states that he has seen, where the triangle was reversed—the base being situated on the cornea, and the apex at the periphery? The subject is of little importance in a practical point of view.

OPACITIES OF THE CORNEA.

The first object in the treatment of opacity is to remove any remaining inflammation. "The process by which an opaque deposit of any kind is removed from the texture of the cornea is that of absorption; and the only mode in which the surgeon can be of use, is in the employment of such remedies as have a tendency to increase the action of the vessels engaged in that process." After depositions of this kind, the absorbents are tardy in removing the superfluous matter—hence it is necessary to apply an artificial stimulus which shall excite the dormant energies of the vessels.

A solution of the nitrate of silver is the remedy most frequently used. Its strength should not exceed, in the first instance, two grains of the salt to an ounce of distilled water. "After a time, the proportion of the nitrate may be increased gradually up to ten grains to the ounce of water." In prescribing it, we must not forget that, when long-continued, it is apt to leave a permanent stain of a deep olive colour in the conjunctiva, which, in the case of young persons, and more particularly females, would constitute a serious blemish.

Vinum opii was formerly a favourite remedy. It would probably answer fully as well in the majority of cases.

A solution of the bichloride of mercury "is perhaps as good an application as any other. One grain of the salt to an ounce of distilled water is sufficiently strong to commence with; after a time, two or three grains to the ounce will be borne, but its strength ought to be increased very gradually, as it is considerably more irritating than the solution of nitrate of silver in like proportions. On the whole, it is decidedly preferable to the latter remedy, inasmuch as it never leaves any stain on the conjunctiva, however long its use may be continued."

Various stimulants are employed also in conjunction with unctuous matters. Of these, perhaps, the ung. hydrarg., nit. oxyd., the citrine, the ointment of nitrate of silver, and of the hydriodate of potass, are the best: they should be brought in contact with the conjunctival surface of the inferior lid, in the manner before pointed out.

An old-fashioned remedy, and our author thinks by no means the least effective, is that of blowing through a reed, or quill, some finely-powdered substance upon the surface of the eye, which would mechanically stimulate the absorbents.

In reviewing these remedies, we should certainly abstain from the use of a ten-grain solution of the nitrate of silver, as perfectly unnecessary, as well as for the reasons already given. We have found it necessary to select the remedy, and the strength at which it is most beneficial, not from any preconceived views, but from the actual conditions of the case we are about to treat, and from what we can gather by actual trial.

Moreover, remedies require to be occasionally alternated as well as cautiously increased in strength, as they seem to lose the beneficial influence, which they exerted in the first instance, by constant repetition.

"It is only by the steady use of these remedies, perhaps for a considerable time, that any material improvement can be expected to result. Indeed I am inclined to think that they do not produce so much effect as is commonly attributed to them, for in many cases we find that the opacity is removed by the natural efforts, and in others, notwithstanding their use, it remains uninfluenced."

The absurd operations of removing the opaque portions of cornea, and bringing the edges of the wound together with sutures, paring off the opaque laminæ, and transplanting the tunic on the principle of the Taliacotian operation, are justly ridiculed by the author.

"The only condition which offers a prospect of success by operation is in cases of central opacity where the pupil is obscured, and vision consequently destroyed. In such cases *an artificial pupil* may be formed opposite some portion of the transparent margin of the cornea, so as to give to the patient useful sight."

The author has omitted to mention the great benefit of belladonna in some of these cases. Wherever the pupil can be dilated to a sufficient extent to allow the rays of light to enter the interior of the eye beyond the margins of the opacity, all other treatment is unnecessary; and hence it is applicable to a very large proportion of central opacities of the cornea.

"A particular kind of opacity of the cornea," says the author, "has been observed to follow the use of collyria containing salts of lead." We have no hesitation in stating that this is a mere chimera, as the opacity in question never results but from a peculiar chronic ulcer, which occurs in middle-aged individuals, and presents the same phenomena, whether local applications of all kind be religiously abstained from, or not; as has been abundantly determined by the most able observers, over and over again.

OPERATION FOR ARTIFICIAL PUPIL.

What circumstances are to be attended to before we shall be justified in resorting to an operation for artificial pupil?

1. That the eye has completely recovered from the effects of the morbid action, with the exception of the contracted state of the pupil, &c.

2. That the state of vision be such as to justify the operation: for it is obvious that if vision remain sufficient to enable the patient to find his way about comfortably, or to read large type with optical assistance, it would be improper to perform an operation, which might (from the accidents which sometimes result from the most skilful proceedings), so far from being of service, leave him even worse than before. If, on the other hand, the vision of both eyes has been seriously damaged by the disease, or one has so suffered, whilst the other has been injured in some other way—leaving him unable to move about without a guide, then we shall be warranted in attempting some operative means for his improvement, since, if the attempt failed, his condition could scarcely be made worse.

An operation would be improper if the eye itself were amaurotic, independently of those causes which excluded the light from the interior of the organ. In these cases inflammation has extended to the retina and internal tunics. It would also be improper if a sufficiently large portion of the cornea did not retain its transparency.

It is sometimes a difficult matter to decide on the sensibility of the retina, because where the pupil is obliterated, and the capsule exceedingly opaque, an almost impenetrable barrier is offered to the passage of light into the interior of the eye. In this condition we must form our opinion from the general appearance of the eye—its vascularity, condition of the sclerotica, firmness or softness, enlargement or atrophy of the organ—and act accordingly. Moreover, if we find the anterior chamber obliterated, the iris in contact with the cornea, and more especially if the structure of the iris have been much changed, as denoted by its puckered and irregular appearance, it would imply the existence of so much mischief in the interior of the organ as to render the prognosis extremely doubtful.

If vision be obscured by opacity of the cornea, with or without closed pupil, it is necessary to consider if a sufficient portion of that texture retain its transparency, to allow of the transmission of light through an aperture to be formed in the iris beneath. When a moderate portion of the cornea remains perfectly transparent, or when the entire tunic is opaque, we have less difficulty in forming a prognosis; the doubtful cases being where there is a general opacity with only a partial and imperfect transparency at one or more points, and these of inconsiderable extent.

Amaurosis.

Our author has considered the complex and difficult subject of nervous imperfection and loss of vision—viz. amaurosis and amaurotic affections—in two chapters, separated from one another by an intermediate chapter on the diseases of the humours. The first chapter is headed "Diseases of the Retina," and includes retinitis, or active amaurosis, amaurosis from chronic retinitis, sympathetic amaurosis, amaurosis from affections of the fifth nerve, amaurosis from general debility, hæmiopa, amaurotic cat's eye, glaucoma, muscæ volitantes, and injuries of the retina. The second chapter includes, under the denomination of "Supplementary Affections of the Eye," hemeralopia, nyctalopia, asthenopia, or weakness of vision, imperfect perception of colour, myopia, presbyopia, strabismus, and paralysis of the muscles of the eyeball. This arrangement is not very judicious.

The study is surrounded by difficulties on every side, partly from the impossibility of obtaining opportunities of examining the diseased tissues, during, or shortly after the existence of those pathological states, which give rise to loss of vision, and also in the diversity and obscurity of mere functional disturbances, which undoubtedly constitute the great majority of the transient and curable forms of the disease. Nevertheless it is full of interest, and well deserves the most careful consideration and diligent research. Many people, unwilling to devote that time and trouble to the subject which any difficult subject requires, think that it is unnecessarily

complicated, resolutely shut their eyes against the truth, and loudly applaud any one who describes the disease, not as it exists in nature, but in their own indolent and ill-informed minds.

Our author has, on the whole, given a tolerably full and clear description of amaurosis (considering the scope of the work,) although he has omitted much that might have been introduced, and has not even alluded to the congestive or hyperæmial forms which are comparatively common. Throughout it is apparent that the subject is one which he has studied without that zeal and energy conspicuous in some other parts of the volume, and to which he has not applied—probably from dislike—the full scope of his powerful mind. To quote his own words, "impairment of vision presents itself in such a protean variety of forms, and is described in such an endless diversity of terms, as to render its proper study a somewhat tedious and repulsive task."

Acute Retinitis.—The symptoms which characterize the commencement of this rare inflammation are "*sudden impairment* or even *complete loss of vision*, without any adequate affection of the iris, or of the adjacent transparent textures," combined with a disordered functional condition of the retina, "indicated by certain illusory appearances within or before the eye, such as *corruscations* or *flashes of light*, *coloured representations* of a red, sparkling, and variegated description, and, not unfrequently, *black moats* or clouds floating about."

A patient, whom we saw with this disease shortly after its commencement, stated that she was awoke in the morning by pain in her right eye, severe headache, and browache. She found that vision in this eye was almost completely lost, and complained of great intolerance of light, sensations of luminous flashes passing in front of the organ, and tenderness of the globe. A slight zone surrounded the cornea, and there was general fever. The disease was completely subdued, and vision restored by bleeding and mercury.

"The *treatment* of acute retinitis must be energetic in proportion to the activity of the symptoms, and the dangerous character of the disease; since, if the morbid action be not speedily arrested, such an amount of organic change may be produced as will certainly prove destructive to vision. Any considerable deposit of lymph, or even so much as to produce opacity of the texture of the retina, will be almost sure to be followed by this lamentable result."

We believe, however, that the prognosis is not so unfavorable, if active and judicious measures be commenced sufficiently early. In the Lancet for 1840-41, Vol. 2 (Essay 2d,) we find that Dr. Hocken states he "can prove that judicious measures are capable, not only of putting a stop to the symptoms, by curing their pathological origin, at an early period of their existence, but even of restoring vision after its complete loss,—provided that treatment be commenced before the functional loss has become permanent, or the effused lymph unsusceptible of the influence of mercury, by its becoming organized, and undergoing analogous changes." These assertions are illustrated and confirmed by a case.

Our author includes under "chronic retinitis," a description of several other forms of amaurosis, beside the varieties of the inflammation itself.

In fact, the section is similar to those general descriptions of amaurosis which we find in volumes where the author either considers and treats the subject as if it included but one disease, or where a general consideration precedes a description of the very different pathological states which are included under this generic term.

"Sometimes," says the author, "there is an involuntary rolling motion of the eyes, and this is more particularly observable in those cases in which the amaurosis is owing to some congenital disease; but it is not uncommon to witness it also, to a certain extent, even in persons who have been attacked during the adult period of existence. In some instances of the latter, I have noticed it in so slight a degree as scarcely to be perceived without a close inspection. This involuntary movement is commonly thought to be owing to the eyes being incessantly in search of light—a thirst for light as it has been fancifully termed—but as it is observed in cases of the most complete amaurosis, and is not always present even in congenital cases, I think it should be regarded rather as the result of some affection of the motor nerves, either in the brain, or in their passage through the orbit."

The author states that, although he has frequently witnessed the application of strychnia endermically, yet he has never been so fortunate as to observe any really useful results: "having, however, it must be stated, never employed it, except in cases that had resisted the use of ordinary remedies." Strychnia acts as a powerful stimulant to the nervous system, and should, therefore, never be employed during the progress of active congestions, or decided inflammation.

Sympathetic or Functional Amaurosis.—Very similar phenomena are sometimes witnessed in cases where there is not the least appearance of inflammatory action within the eye; in this event, says the author, the defective vision will probably be the result of some disorder, either of the optic nerve, or of the brain, or perhaps of the fifth nerve, and the disease is then termed sympathetic or functional amaurosis.

Usually, in amaurosis from affections of the brain, the patient complains of pain in the head, vertigo, and sometimes paralysis of other parts—as loss of sensation, or of power over the muscles of the face, or of the eyelids—denoted by a twist of the mouth, ptosis, or lagophthalmos. In children, amaurosis is often accompanied by the ordinary symptoms of hydrocephalus.

Symptomatic Amaurosis.—Amaurosis "is sometimes symptomatic of a disordered condition of some more remote organ, as the stomach, intestines, or the uterus. When there is no appearance of disease of the retina, and no sufficient indication of cerebral mischief to account for the defect of vision, we must try to discover whether or not some of the abdominal viscera be the seat of morbid action. Numerous visceral derangements are considered competent to the production of amaurosis; among these may be mentioned worms, indigestion, irregularity of the menstrual function, hysteria, and the like. That amaurosis is a frequent accompaniment of these morbid conditions there can be no doubt, but it is doubtful if the retina be ever influenced in this manner, except through the medium of the brain itself, the paralysis of the retina being to be regarded

as resulting from disordered action of the brain. It may be a question how far the retina can be affected through the medium of the sympathetic nerve, but at present we have no sufficient data to reason upon. The proper mode of remedying this variety of amaurosis is by restoring the healthy function of the organ, to whose derangement the impairment of vision seems referrible ; the means to be adopted are necessarily various, depending on peculiarities of age, sex, constitution, condition of the affected organ, and the like. It is not my intention, however, to enter upon the nature and treatment of the various morbid conditions which I have mentioned as giving rise to symptomatic amaurosis ; I can only refer to the proper authorities for suitable information. Some very elaborate essays have been recently published in the journals, by Dr. Hocken, on symptomatic amaurosis, particularly from hysteria, to which the reader is referred. His volume on the same subject is also worthy of attention."

Our author imagines that, when vision is injured from affections of some of the branches of the fifth nerve—especially the frontal branch—sensibility to light only is lost (not vision,) usually combined with a dilated pupil, or mydriasis—unless the nervous matter of the retina has suffered simultaneous concussion.

"The effects of blows or other injuries in the neighbourhood of the eye, are exceedingly various ; sometimes the retina being paralysed, sometimes the iris, and at others the lens is rendered opaque ; and vision will be impaired from any of these causes. It is very common for medical men, if they see a case of dilated pupil with imperfect vision, to set it down at once as a case of amaurosis, without inquiring how far the disturbance of vision is the result of paralysis of the iris, and whether the retina may be only secondarily affected. I repeat, therefore, that when there is paralysis of the retina accompanying dilated pupil, in this description of case, we are to regard the former as, in all probability, resulting from concussion of its texture, or of that of the optic nerve, or of the brain." 232.

We have little doubt that the symptoms often depend on mydriasis in these cases, and occasionally on injury of the eye, orbit, or brain, but not invariably on either. Dr. F. D. Walther, (Journ. der Chir. and Augenheilk, Oct. 1840,) from a careful review of the subject, arrived at the conclusion that injury of the fifth nerve had nothing to do with the production of amaurosis—1st, because division of the frontal branch is often affected without amaurosis ; and 2d, because it occurs when the nerve is intact. This reasoning however is most fallacious, inasmuch as those who have seen the greater number of such accidents do not contend that amaurosis occurs from every injury of the frontal branch, but when it is partially divided, or becomes involved and irritated in the subsequent cicatrix—hence the treatment recommended is to divide the nerve completely, and several cases are on record of its complete success. We have the testimony of so able an ophthalmic observer as the late Dr. Hunter to prove that true amaurosis occasionally follows an injury of one of the branches of the fifth nerve. He read a very curious and interesting case of "Temporary amaurosis of one eye following the extraction of a tooth," before the Med. Chir. Society of Edinburgh, April 7th, 1841.

Bearing in mind what we have already stated in reference to the function of the ophthalmic division of the fifth nerve—that filaments distributed

with the retina probably supply that membrane with sensibility to the influence of light, and regulate the aperture of the pupil according to the quantity of light admitted into the interior of the eye—it seems most likely that the majority of cases, not depending on the injury of the retina, optic nerve, or brain, are not cases of true amaurosis, but of insensibility to the irritating influence of light, and some imperfection and confusion of vision from mydriasis, or excessive dilatation of the pupil; whilst the few cases of true amaurosis are dependent on irritation of this branch, and not on its paralysis.

Amaurosis from general Debility.—Our author remarks, that among amaurotic patients there will sometimes be considerable difficulty in satisfying ourselves as to the kind of case we have to treat—whether it be one that has arisen from an enfeebled condition of the general system, or whether the amaurosis be the result of organic change in the structure of the retina, or of some portion of the brain or nervous system; and, as a consequence, we are at a loss to decide on the most appropriate treatment. In such cases, he says, it is better to trust to the internal exhibition of mercury, carefully avoiding the production of salivation, at the same time improving the general health by good nourishing diet, tonic medicines—as quinine preparations of iron, and the mineral acids, country air, sea-bathing, and the like. Should there be any leucorrhœal or other debilitating discharge, this should be checked by every suitable means, and if suckling have been continued, it must be at once put a stop to. Though counter-irritation may be serviceable, yet it ought not to be of such a character as to produce any considerable discharge; hence, issues and setons are not to be commended, and sinapisms or stimulating linaments to the temple or nape of the neck are to be preferred.

To diagnose these cases, it is only necessary to investigate and analyse carefully *all the symptoms, both objective and subjective*, which are present. Bearing in mind that general debility, with an anæmic, or cachectic condition, often complicates amaurosis, dependent on disease going on within the eye, orbit, or brain, it becomes necessary to ascertain if any such exist, by attending to the peculiar symptoms of each. The phenomena of cerebral disease differ sufficiently from the symptoms of mere deficiency of the cerebral circulation to enable the attentive and well-informed practitioner to discriminate them successfully, and hence to adapt an appropriate treatment to each.

Passing over the sections on hemiopia and amaurotic cat's eye, we may remark that we fully agree with the author, that "glaucoma" is simply a form of internal inflammation, where the posterior chamber, instead of being perfectly transparent, exhibits an appearance of a dull green colour. "That these trifling deviations, depending upon accidental circumstances, should be thought worthy of distinct names, and indeed be described as distinct affections, is certainly not a little remarkable. Dissection has shown that, in these cases, the internal textures of the eye generally have been the seat of inflammation, which has led to various diseased appearances—the retina being probably the focus of morbid action. The retina has been found covered with a deposit of lymph, and otherwise altered; the vitreous humour fluid and of a yellowish or greenish tint; the pig-

ment of the choroid more or less absorbed, and its vessels varicose; and frequently the crystalline slightly discoloured or opaque, with sundry other changes characteristic of the existence of internal ophthalmia.

Injuries of the Retina.—The author endeavours to reprobate the idea, entertained by most persons, that the effects of injuries are in proportion to the presence or absence of resistance or preparation on the part of the patient, at the time of the accident.

"Most injuries of this sort are accidental, unexpected, and therefore no preparation can be made to ward off the means by which they are inflicted. If it be meant generally that a person who is expecting a blow, as in boxing, will be better prepared to ward it off, and that when an injury is received under such circumstances, the mischief inflicted on the eye will usually be less, so far may be readily granted; but if it be intended to mean that the same degree of violence applied to the eye, when the person is not expecting it, will produce more serious effects than when he is on the look-out for the injury, then I do not perceive that the proposition is tenable." 241.

It seems to us that the author has taken a wrong, and somewhat ridiculous view of the matter. We understand the common opinion that amaurosis is more likely to result from a slight injury if the eye be unprepared for violence—to mean that a blow may be inflicted on the eye whilst the lids are open, and the sufferer quite unconscious of his danger till he feels its effects. For instance, a person has been known to have received a slight blow on the cornea from a spent shot, and to have become amaurotic in consequence, whilst eagerly viewing some individuals shooting at pigeons; being himself situated at such a distance as to believe himself out of danger, and being struck before the lids had time to be closed, &c. &c. The rationale, also, of these facts appear to us perfectly clear, viz. that if the globe be struck whilst the lids are open, and the eye as prominent as usual, its effects are felt mainly in the nervous structures at the bottem of the organ; but if the lids are closed previously, the eyeball retracted, and the brow and cheek drawn more or less over the organ, in order to protect it—that is prepared for violence—the main effects are expended on the superficial structures, and the retina often escapes.

The term asthenopia is adopted from Dr. Mackenzie's Essay for "weakness of sight." The author thinks that the affection is unconnected with amaurosis, although it is commonly considered as a variety of it. If amaurosis includes every variety of defective vision, temporary or partial, dependent on nervous derangement, it is obvious that it can belong to no other genus. He considers that probably its essential nature is debility of the retina, rendering it incapable of sustaining any long-continued exertion." "Very likely, also, the nervous and muscular powers of the eye generally participate in the loss of energy." We fully concur with the author, that the benefits stated to have resulted from division of one or more of the muscles of the globe, "ought rather to be attributed to the repose which the eyes would receive afterwards, than to the operation itself."

We close the volume, fully convinced that it is the production of an observant and intelligent mind. We have to differ in opinion with the

author on some important practical points—particularly on the apparent want of discrimination in the types of disease, and the selection of remedies, according to the peculiar features of the individual case: as well as an undue partiality for the application of the nitrate of silver to the conjunctiva. Some parts of the volume are too much extended, if they happen to partake of the author's favour, and others equally contracted. On the whole, however, the Oculist's Vade-mecum is an excellent practical digest of the present state of the art and science of ophthalmic medicine and surgery. The wood-cuts and coloured engravings are the worst part of the volume.

Remarks on Schools of Instruction for Military and Naval Surgeons, in a Letter to the Right Hon. Sir Robert Peel, Bart. By Sir *George Ballingall* M. D., Regius Professor of Military Surgery in the University of Edinburgh.

The subject of medical education has of late deservedly received much consideration, and various modifications have been introduced by the different colleges into the course of study required of candidates for their diplomas. Our attention has been directed, by the pamphlet now before us, to the qualifications demanded of those who are ambitious of serving in the medical departments of the Army and Navy, and to the means provided for their special instruction. It is undoubtedly the imperative duty of Government to supply efficient medical assistance, by means of a properly qualified body of officers, to those engaged in the protection of British interests in our widely extended possessions, where they are frequently exposed to those causes of sickness and mortality which decimate the ranks of an army far more surely than an enemy's bullets, and may overturn the best concerted plans of military operations. To fulfil this obligation, it would appear necessary to secure the services of individuals who have devoted themselves to the study of the various branches of medical science, and are well versed in its general principles. But while we assume that a knowledge of these principles and of their practical application is sufficient for the successful treatment of disease in any quarter of the globe, the question may still be asked, is there any peculiarity in the condition of the soldier or sailor which requires a different course of study from that necessary for the surgeon destined for practice in civil life? This opinion is held by our author, the object of whose pamphlet seems to be, to show "the liberal provision made by some foreign states, particularly Prussia and Austria, for the education of their Army Surgeons, compared with the very scanty provision made for the same purpose by our Government," and to recommend "the endowment of a professorship of military medicine and surgery in London, and another in Dublin."

We may remark that the liberality on the part of these Governments (if it deserves that name), is in some measure rendered necessary by the

niggardly hand with which they dole out pay and retiring allowances to the medical officers. These are framed on so economical a scale, that few persons in a position to educate their sons at their own expense consider the army to hold out sufficient inducements to place them in it, and the Government is consequently obliged to obviate the want of candidates resulting therefrom, by contributing liberally towards the training of individuals for this department. In the British service however the remuneration, present and prospective, is calculated more equitably, and no difficulty is experienced in procuring a sufficient number of well-qualified officers without any such assistance.

Our author considers a course of lectures on military surgery to comprehend "all that in either branch of the service (Army or Navy) contributes to the prevention as well as the cure of disease," justly observing, "it cannot be too often repeated, that it is by prevention rather than by cure, that the efficiency of our fleets and armies is to be maintained." He states it as his opinion, that the only men qualified to fill the proposed professorships with advantage, are, "those who have gained experience abroad in the service of their country, and who consequently have established a claim on the public to half-pay." By this it is doubtless intended that medical officers of either branch of the public service should be deemed eligible, although nothing is expressly stated in the letter on this head; but it need scarcely be observed, that an Army-Surgeon may be very imperfectly acquainted with the economy of a man-of-war, and therefore by no means qualified to deliver a course of lectures on naval hygiène; while on the other hand, a naval surgeon, however well-informed in regard to his own branch of the service, may not be very competent to instruct medical officers of the Army respecting the best means of preserving the health of soldiers.

In recommending the establishment of two additional professorships of military surgery, Sir George Ballingall intends, we presume, that this should become a compulsory class, and that every candidate for admission into the medical department of the army, should be obliged to fee one or other of these professors. Has he assigned adequate reasons for this important measure? We think not. Such a regulation might justly be considered a hardship, as a very small proportion of the candidates ultimately obtain the object of their wishes. An endowment is no doubt an excellent thing for the endowed; but has he shown that the curriculum of study for the Army or Navy is inadequate? Are the medical officers of either service not sufficiently conversant with their duties? Is the discipline young officers undergo at Fort Pitt or Haslar, and in a regiment or on ship-board, not adapted to initiate them into the mysteries of their respective appointments? What practical advantages have resulted, during the last 30 years, from the establishment of a chair of Military Surgery in Edinburgh? Are the few who have attended this class more efficient, more studious, better informed, more accurate observers, or more zealous and industrious in collecting and diffusing the results of their experience and observations than their brother officers?

With respect to the elementary and professional education which a candidate for admission into the Army must possess, it may be briefly stated, that a competent knowledge of the Greek and Latin Languages is indis-

pensably requisite, and no one can be appointed who does not possess the diploma of the College of Surgeons of London, Edinburgh, or Dublin, and who cannot produce testimonials of—

18	months'	Hospital Attendance.
24	"	Anatomy.
12	"	Practical Anatomy.
12	"	Surgery.
8	"	Clinical Surgery.
12	"	Practice of Physic.
8	"	Clinical Lectures on ditto.
12	"	Chemistry.
6	"	Practical Chemistry.
3	"	Botany.
4	"	Materia Medica.
3	"	Practical Pharmacy.
5	"	Natural History.
5	"	Natural Philosophy.
3	"	Midwifery.

A similar course of study is required of candidates for the Navy, and will be generally allowed, we believe, to be sufficiently extensive ; indeed it is more so, both in regard to the number of classes and the period of attendance enforced on several of them, than that of any of the licensing bodies in the United Kingdom.

Military Surgery, as has been already stated, comprehends the study of the prevention as well as the cure of diseases ; consequently, in a course of lectures on this subject, hygiène may be expected to occupy an important place. The various topics to be discussed under this head, are given at great length by Vaidy in his article "Hygiène Militaire," in the Dictionnaire des Sciences Medicales. The more important of these are thus briefly enumerated by Mr. Marshall.*

"The recruiting of the Army, bounty, pay, pensions, rewards ; provisions, messing, &c. ; barracks, transports, and clothing ; personal cleanliness ; duties and exercise of soldiers ; schools and regimental libraries ; military discipline, punishments, coercive and corporal ; habits of soldiers, comprehending virtues and vices ;—the constitution of the medical department, and the duties of the medical staff, both general and regimental ; military hospitals, moral treatment of the sick, the compilation of numerical returns of the sick, and the plan of drawing up reports of diseases, both general and special ;—proceedings of boards, sick certificates, &c., together with the general principles of military statistics and medical topography ; and lastly, instructions to young medical officers, respecting their general conduct, especially in regard to their superiors, their equals, inferiors, and patients."

We beg our readers not to conclude, that because, in our opinion, Sir George Ballingall has failed to make out a case for the endowment of two new professorships, we deem the careful study of the means of preserving the health of soldiers—military hygiène—unimportant. We have quoted above, the leading subjects embraced by it, in order to show to those unacquainted with the subject that it is of the first consequence ; but it is

* Edinburgh Medical and Surgical Journal, No. 124.

one of those branches of knowledge which may be acquired as well in the closet as the class-room. It is true there is no comprehensive work on the hygiène of the British Army and Navy,—one which treats in detail of the various duties of medical officers in these branches of the public service; but the more important facts may be acquired from separate treatises. We may particularly mention Millingen's Army Medical Officers' Manual—Hennen's Military Surgery and Medical Topography of the Mediterranean—Dr. Jackson on the Formation, Discipline, and Economy of Armies—Ballingall's Military Surgery—Marshall on the Enlisting and Discharging of Soldiers—and the Statistical Reports on the Health of the Army and Navy. If we are rightly informed, the Director-General of the Army Medical Department at one time contemplated a treatise on military hygiène, and had made some progress in its execution; but whether it be near its completion or likely soon to be published, we are ignorant. A work of this kind from authority, would, we think, be of much advantage to the service; indeed, a comprehensive treatise on the best means of preserving the health of soldiers, by a talented, industrious, experienced medical officer, although of subordinate rank, might convey much useful information to the junior members of the department.

Among the reasons advanced in favour of this scheme of endowment, is the necessity of having some one to explain and comment on the "Statistical Reports on the Sickness, Mortality, and Invaliding among the Troops," and the "Statistical Reports on the Health of the Navy." "These have been prepared," says Sir George, "at an enormous amount of labour to the authorities of the Horse Guards, the Medical Board and the Admiralty, and at a very considerable pecuniary expense to the public. All this labour, all this expense will, I confidently assert, be in a great measure lost to the service, unless means are taken to concentrate the valuable information embodied in these reports, to put it in an attractive form, and to keep it constantly before the present and rising generation of army and navy surgeons." Now, in adducing this as an argument, we think our author has been rather unfortunate; for we have always considered these Reports to be so remarkably plain and unambiguous, and the conclusions deducible so clear, as to be perfectly intelligible to the meanest understanding. They are, moreover, works which ought not to be taken up merely as the groundwork of a few passing observations in a lecture-room, and then be thrown aside, but are worthy of repeated careful perusal, and on foreign stations ought to be books of constant reference. This view appears to be taken by Government, as copies have been transmitted to every regiment, to be retained as official documents, and we have reason to believe they have been more justly appreciated by officers on foreign service, who could not have availed themselves of the advantage of having them expounded *ex cathedra*, than they have been in this country.

Our author has long been distinguished for his zeal in advocating the importance of lectures on military surgery, as a means by which medical officers, who have been serving on foreign stations, may "recover their lost ground, and qualify themselves to take their place among the well-informed members of the profession." It seems, however, to have escaped his notice, that these officers, even after many years' absence from

their native land, rarely obtain, on their return, more than one or two months' leave of absence, provided they are fit for duty, and are usually more disposed to spend that with their friends in the country, than to resort to the "Metropolitan cities of the Empire," although, by so doing, they might obtain "the most recent, the most satisfactory, and the most authentic information on the progress of science, and on the improvements which have taken place during their absence." We feel bound in justice to add, that we understand his exertions to stimulate the emulative industry of his class—a most important means of exciting to professional improvement—have been such as to deserve the highest praise, and are well worthy of imitation.

The Medical Board at Calcutta, in 1818, issued a circular, "in conformity with the orders of Government," in which they state:—"It has been a frequent subject of regret to the medical world, that wide and rich as is the field in India for the cultivation of physical science and of pathology, the labour hitherto employed in it, even in comparison with what has been bestowed on far less promising spots, has been negligent and irregular; and the product presented to the public scanty, and in the extreme unprofitable. Whilst in almost every other portion of the civilised world scientific objects have been pursued with energy and success, and every successive year has added largely to the previous stock of medical knowledge, India has scarcely given birth to a single important discovery, or publication of acknowledged merit on professional subjects, since the first establishment of the British interests in this quarter."

We do not intend to examine how far these observations may still apply to the Medical Department of the Company's Service, or whether the officers of the Queen's Army, and of the Navy, may not, in some degree, merit a similar censure. We believe they are not deficient in point of professional zeal and intelligence, but hitherto the fruits of their experience have in a great measure been confined within a narrow sphere, and thus, whilst the medical world has been deprived of the principal end and use of past observation and experience, that of serving as a guide for the future, the junior branches of the service have been shut out from benefitting by the fund of knowledge acquired by their seniors. The following remarks, bearing upon this point, are quoted from the important and authoritative circular above noticed:—"The individuals composing this respectable class (the Medical Department) have ever been remarkable for the diligent and able performance of their duties. They would seem to be, by previous regular education, and by subsequent large acquaintance with the diseases usually prevalent in hot climates, peculiarly qualified to impart useful information to their less experienced brethren." "The true nature and treatment of fever, bowel complaints, and the other classes of disorders common to India with other regions, are yet very imperfectly understood; and their investigation, while it lies peculiarly open to practitioners in this country, would be hailed by their brethren in Europe, as opening a path that must lead to conclusions important and interesting to all. The various species of cutaneous diseases, elephantiasis, and other maladies almost peculiar to warm countries, present a wide and nearly untrodden field to the curiosity of future investigators."

The history of the arts and sciences in this country, affords an instruc

tive proof of the advantages to be derived from exciting a feeling of emulation in any body of men. One of the most striking examples of this may be found in the results that have followed the exertions of the Highland Society of Scotland, which, by offering liberal premiums for essays and memoirs on subjects connected with agriculture, successfully stimulated individual industry, and in a few years produced a complete revolution in that science. With a view to the application of the same principle to medicine, the following advertisement was issued at Madras:

"Fort St. George Gazette, No. 38, dated 12th May, 1832, Saturday.

ADVERTISEMENT.

Medical Prize Essay.

"With a view to the advancement of medical science and to communicate useful knowledge, the Medical Board, under the sanction of Government, announce to the Medical Officers under this Presidency, whether of His Majesty's or the Honourable Company's Service, that a prize of Rupees 500, or a gold medal of that value, with a suitable inscription, will be awarded in the course of the year 1833, to the best dissertation on each of the following subjects:

"1. On the disease called 'Beriberi,'

"2. On Rheumatism and the Neuralgic Affection, occasionally a sequela of it, which is termed among the natives 'Burning in the Feet.'"

"Four essays on "Beriberi," and three on "Rheumatism and Burning in the Feet," were received, all of them possessing very considerable merit, the prize being awarded to Dr. J. G. Malcolmson, of the Madras European Regiment, whose essay on Beriberi contained a very able and laborious investigation into the causes, nature and treatment of that disease, eminently calculated to impart just views of the former, and to render the latter more discriminating and successful. His essay on Rheumatism was equally satisfactory. Both papers were published at the expense of Government, and distributed among the Medical officers of the Madras establishment.

The late Sir Gilbert Blane left a sum of money, the interest of which was to be appropriated to the purchase of a gold medal, for the Medical Officer in the Navy, who, during each year, shall have kept his medical journals in the most satisfactory manner. The establishment of this prize has been followed by a marked improvement in this particular department of the officer's duty, and throughout the service there is a great ambition to obtain this honourable distinction.

Considering the success which has so eminently attended all these experiments, we are much disposed to think, that the liberality of Government would be more beneficially exercised in awarding premiums for essays and memoirs, than in endowing professorships of military surgery. Abundant subjects for these might be found in the diseases peculiar to our various colonies and dependencies, and in those incident to a naval or military life. For instance, some of the following might be selected:—A Medical History of the Chinese War, or of the War in Affghanistan; On the Endemic Diseases of the East: On the Epidemics of the East; On the Fevers of the West Indies; On the Geographical Distribution of Diseases; On the Means of preserving the Health of Soldiers and Sailors,

&c. Were Government to follow the example of the Madras Board, and publish the prize essays for gratuitous distribution to the officers of both services, the advantages of this scheme would be much enhanced. The inducements to exertion would be increased by the certainty of the successful work being extensively circulated among those who would be most likely to appreciate it, while, at the same time, the officers of the medical department would be periodically supplied with the most recent and complete information on points of importance connected with their profession. But another and even more desirable end would probably be attained; officers would be induced, from the commencement of their career, to collect information whenever an opportunity should present itself, in the hope that, at some future period, it might be made available for this honourable competition, and would thus spend in the acquisition of useful knowledge, many of those hours, which, we fear, are at present spent in the billiard-room, or dissipated in some of those ingenious methods devised, both in the Army and Navy, to kill time. In preparing these essays, it is not the mere collection of information on the subjects of them that is gained, but, in his researches, the writer addsto his knowledge on all the collateral branches of science, and however much the profession may profit by his labours, there can be no doubt that the greatest share of benefit accrues to himself. Viewing it then as a most important means of individual improvement, and consequently of increasing the efficiency of the Department, we most earnestly desire to see some scheme of this nature in operation. Sir Robert Peel seems well aware of the advantages derived from competition among the Farmers, and has recently, in his own county, promised to aid them in their experiments in agriculture. Let him try an experiment in another branch of science, and establish prizes to be competed for annually by the Medical Officers of the Army and Navy, and we may safely predict, he will thereby confer on the United Service a great and lasting benefit at a trifling expense to the country.

Medico-Chirurgical Transactions, published by the Royal Medical and Chirurgical Society of London. Second Series, Volume the Eighth. 8vo. pp. 425. London, 1843.

(Concluding Notice.)

In our last Number, we gave an account of many of the Papers contained in the volume before us. We shall now bring that account to a conclusion.

I. A Few Observations on Encysted Hydrocele.—By *Robert Liston*, Esq. F. R. S.

Mr. Liston's object is to point out the possible connection of encysted

hydrocele with some of the seminiferous tubes of the testicle. After observing that the collections forming encysted hydrocele are described as occurring,—

"I. On the testicle, betwixt the albuginea and tunica vaginalis—at first as small transparent cysts, but gradually increasing in size.

"II. As presenting by the side of the epididymis, betwixt that body and the reflection of the tunica vaginalis from the testis.

"III. As appearing in the course of the spermatic chord above the testicle. In this latter situation, no doubt, collections of various kinds are to be met with in the loose filamentous tissue of the chord; in the unobliterated portions of the spermatic process covering that body; or, possibly, in more immediate connexion with the vas deferens itself." 217.

Mr. Liston goes on to say, that the fluid of encysted hydroceles of the chord, varies, as might be expected, in quality, from an albuminous to a limpid fluid—that, when the latter is the case, it is well known that the cyst does not become as readily obliterated by injections, &c. as do serous cysts—and that, the object of the present communication is to explain why this should be.

A gentleman had a cyst connected with the testicle punctured, and the fluid drawn off. On the third occasion scarcely a trace of albumen could be detected.

"On the second day, a minute quantity was put in the field of the compound microscrope, and my surprise was great indeed when it appeared quite full of spermatozoa—there were besides to be detected some of the primitive cells, in which the spermatozoa are developed, and a certain number of mucous globules." 219.

The fluid not being examined immediately, it was not ascertained whether the animalcules had their usual liveliness of motion. Mr. Liston has been making inquiries upon the subject, and he finds that, in some cases, "cysts are formed behind the testis; others in the fore part, projecting into and covered by the reflected tunica vaginalis, and no doubt by the tunica albuginea also; other, and in some instances, numerous cysts are seen above the testicle—multilocular hydrocele of the chord." There is a specimen in the collection at St. Bartholomew's Hospital, without any history, but described, in the catalogue, thus :—

"'Testicle with part of the spermatic chord; along the epididymis there is a series of membranous cells communicating together, and having for their outer boundary the tunica vaginalis, and its reflection between the testicle and epididymis. *These cells contained a transparent and colourless fluid.* A bristle is passed beneath the vas deferens near its connexion with the epididymis.'

"Here the sac is closely connected with the epididymis, *if not an actual dilatation of its lesser head.**

* "There is also a preparation in the collection of Mr. Bransby Cooper, in which a cyst is seen connected with the upper part of the epididymis, pushing the tunica albuginea of the testis before it, and projecting into the cavity of the tunica vaginalis. Mr. Cooper punctured this cyst, and drew off three or four ounces of limpid fluid, which contained scarcely a trace of albumen. The patient died of pneumonia a few months after the operation, and the preparation being obtained, showed the sac somewhat contracted, though gradually refilling."

"This subject deserves further investigation, to discover, first, if the limpid fluid drawn from cysts of the scrotum and inguinal region, uniformly or often contains spermatozoa.

"Secondly, what connexion subsists betwixt the seminiferous tubes and their cysts.

"Thirdly, whether or not dilatation of parts of the epididymis or vas deferens, obstruction or otherwise, may not, in some instances, give rise to these collections.

"If so, this being a pouch lined by mucous membrane, we should have an easy solution of the difficulty regarding a radical cure, not following injection as in the serous cyst. The microscopic examination of the lining membrane of a recent cyst would easily settle the nature of the secretory surface." 221.

In a case which has subsequently occurred at the Hospital, the fluid from a small cyst above the testicle of a man, aged 53, was nearly transparent and colourless, and contained spermatozoa which moved actively for some time.

In November last, Mr. Dalrymple again drew the attention of the members of the Society to this subject, and offered a new explanation of the occurrence of spermatozoa in the fluid of hydrocele. "He quoted the authority of Scarpa to show that when the tunica vaginalis becomes distended with fluid, the different vessels of the spermatic chord are separated from each other to a greater or less distance, owing to the gradual expansion of the membrane, and the epididymis and vas deferens are, consequently, removed out of their natural places in reference to the body of the testicle. He likewise presented to the society a preparation, with a drawing of a hydrocele, in which that condition of the tubes of the testis was exhibited."* In fine, his opinion was, that the epididymis and vas deferens *might* be punctured in the operation of tapping, and that even a single tube wounded might afford the few spermatozoa found in common hydrocele.

In the present Volume of the Transactions, there is another paper on the "Presence of Spermatozoa in the Fluid of Hydrocele," by Mr. Lloyd. He first observed the animalcules in operating on what "there was no reason to doubt" was hydrocele of the tunica vaginalis testis." The spermatozoa were numerous. "The fluid of the hydrocele, in the precise condition in which it was abstracted, contained, in addition to the spermatozoa, a few blood globules, small roundish granular bodies, some apparently empty, nearly colourless cysts, and many masses of opaque matter, which seemed to be made up of portions of epithelium." Mr. Lloyd has subsequently examined the fluid in about thirty cases, and found living spermatozoa in two. In the second case, one of common hydrocele, with the fluid highly albuminous, there were likewise a few blood globules, transparent cysts, and small granular bodies; also portions of epithelium, or what very much resembled it.

In the third case, "the situation of the fluid appeared to be very much that of common hydrocele of the tunica vaginalis, and after the operation had been performed there was nothing peculiar to be observed in the testicle or its appendages. There were about four ounces of fluid abstracted,

* Lancet, Dec. 16, 1843.

which was of paler colour than is usual in hydrocele, and displayed very much the appearance described by Mr. Liston as exhibited by the fluid of the encysted hydrocele, in which he had discovered spermatozoa. But in one respect it differed from that, as it contained a considerable quantity of albumen. There was also found in it much saline matter; but the precise nature and proportions of which were not ascertained. The spermatozoa met with in the fluid were very numerous" and living. Here too, the fluid contained a few blood globules, transparent cysts, spermatic granules, and scales of epithelium. This patient has been tapped a second time with the same results.

In the "Transactions," Mr. Lloyd professes himself unable to explain the phenomenon. But in the discussion on Mr. Dalrymple's Paper, to which we have alluded, he takes courage, and is of opinion that either a previous abscess of the testicle may have been the source of the spermatozoa, or that they may be formed by a "vicarious action." This certainly does not explain much, and must be looked on as rather hypothetical at present; and, in fact, we must conclude that the subject needs more investigation. For ourselves, we are satisfied that parts of the seminiferous apparatus, not excluding the testicle itself, *are* occasionally wounded in the operation for hydrocele, and *may* account for the spermatozoa in some instances. Whether it will do so in all is problematical.

II. Statistics of Bethlem Hospital, with remarks on Insanity. By *John Webster*, M. D.

Dr. Webster has conferred a material favour on the profession by the pains he has been at in arranging the data of the present communication, and by the careful manner in which it has been compiled. It comprises a statistical report of the principal occurrences met with at Bethlem Hospital, during the last and present century. We are presented with the number of admissions and of deaths, and the proportion of patients reported cured, during different periods, of equal duration. These classified statements are accompanied by a few general remarks on insanity; and, lastly, an account is given of the chief pathological changes of structure observed on the dissection of seventy-two insane patients, which have been recently performed in that hospital.

It appears that, since the year 1683, 22,897 insane patients, exclusive of incurable and criminal lunatics, have been admitted into Bethlem Hospital, but the present paper refers only to the occurrences of the last hundred years.

"In pursuing this investigation, the number of patients received into Bethlem Hospital, with the total amount of cures, and the actual deaths reported, as also the per centage calculated on each, will be enumerated under separate heads; embracing, however, different periods of twenty years in each division; the first commencing the first of January, 1743, and the last terminating the 31st of December, 1842. It is, nevertheless, right to mention, that, owing to defects in some of the official registers of the institution, the exact number of patients discharged cured from Old Bedlam, and the amount of deaths which took place in one or two of the years prior to 1748, could not be accurately ascer-

tained, and are therefore given from a comparison with the results of subsequent years." 376.

The number of admissions reported are, however, correct, as well as the other particulars in the Tables. The first of these is a—

Table exhibiting the total number of lunatic patients admitted into Bethlem Hospital, discharged cured, or died, during five different periods of twenty years each, ending the 31st December respectively.

Without inserting the Table itself, we will advert to the main features of it, and to the deductions of our author. In each period of 20 years, with the exception of those ending in 1822, and in 1842, the number admitted was between 3 and 4,000. But in the former of those last-named periods, the admissions decreased to 2,149; and in the latter, they rose to 4,404.

The material diminution in the number of patients admitted, during the first half of the present century, must be looked on as an accidental circumstance, for the number of patients received during the same period into St. Luke's Hospital was greater than during the succeeding one.

But a gratifying fact is, the uniformly increasing proportion of patients discharged cured, and the diminution in the number of deaths, since the middle of the last century.

"For instance, the ratio of recoveries during the first twenty years embraced in the preceding statement, was only $32\frac{1}{4}$ per cent. on the admissions, whilst it rose to $51\frac{1}{2}$ in every hundred patients admitted during a similar number of years ending the 31st December, 1842; at the same time that the amount of deaths actually decreased from $21\frac{2}{3}$ per cent. to $5\frac{1}{11}$ per cent., or less than one-fourth the previous average, after an interval of nearly a century. The difference will, however, appear even more marked, when the results met with during three years in the middle of the last century, are compared with similar results reported to have occurred in the three years just terminated. In illustration of this point, it is only necessary to refer to the official tables already quoted, which show that the number of insane patients received into Bethlem Hospital discharged, cured, or died, during the specified period, were as follows :—

	ADMITTED.	CURED.	DIED.
In 1750–51–52,	462.	145 or $31\frac{1}{2}$ per cent.	118 or $25\frac{1}{2}$ per cent.
In 1840–41–42,	897.	492 or near 55 per cent.	51 or $5\frac{5}{8}$ per cent."

In 1753 the deaths at Old Bethlem Hospital exceeded the recoveries, but then the small-pox prevailed. In 1770, another year of small-pox, the deaths and recoveries were equal.

Women are more prone to insanity in this country than men. During the twenty years ending December 31, 1842, the following were the numbers of admissions, cures, and deaths in each sex in Bethlem Hospital.

ADMITTED.		CURED.		DIED.	
M.	F.	M.	F.	M.	F.
1,782	2,622	823	1,446	112	112
or		or	or	or	or
47 per cent. more females than males.		$46\frac{1}{3}$ per cent.	$55\frac{1}{7}$ per cent.	$6\frac{1}{4}$ per cent.	$4\frac{1}{4}$ per cent.

Dr. Webster observes that the excess of insane women admitted at Bethlem Hospital is shown to have been 47 per cent., and, as the same facilities regarding the admission of patients into that institution prevail, without any reference to sex, provided the cases are recent, the above

results must be considered conclusive. A similar opinion is likewise fully borne out by the number of insane patients of each sex admitted into St. Luke's Hospital, during the same period of twenty years, to which reference has just been made. By returns obtained through the kindness of a friend, it appears that 1,734 lunatic male patients were received into the wards of that charity, from the 31st December 1822, to the 31st December 1842; whilst the number of insane females admitted during the same period, amounted to 2,310, or 33½ per cent. more of the latter than the former sex. According to these data, derived from the only two public institutions for the insane in London, and therefore the best guides to follow in making any calculations upon the subject, it may be stated that mental affections are much more frequently met with among women than men, at least in this part of the empire; where, speaking generally, the difference amounts to about 35 or 40 per cent. at an ordinary estimate."

Insanity, however, is much more curable in women than in men, and much less fatal to the former. In the table just given, the ratio of recoveries from attacks of insanity was nine per cent. in female more than in male patients; whilst in the latter sex, the number of deaths exceeded by two per cent., the rate of mortality met with in the former. The same fact is noticeable among the insane patients classed as incurable.

"Thus, on that list, 70 male, and 80 female lunatics were admitted into Bethlem Hospital, during the twenty years ending the 31st of last December, and although all were considered confirmed maniacs at the time of their reception, 18 women were actually discharged cured, whilst only six men in the same class of patients left the house convalescent. The results being that 22½ per cent. of the incurable female patients recovered, and only 8½ per cent. of the male lunatics similarly affected. It is also interesting to mention, that the average deaths were even less numerous among the incurable women than men, of whom 31 patients died, being at the rate of 44½ per cent.: whilst among the incurable females, 34 died, or 42½ per cent. upon the admissions. From which data it consequently appears, that among 100 incurable female lunatics similarly affected, there were two deaths less than among the same number of incurable male patients." 383.

The physician may, with confidence, as Dr. Webster observes, offer, cæteris paribus, a more favourable prognosis in the case of a female than of a male lunatic.

A suicidal tendency is too much a feature of insanity to permit those who have the charge of these patients to lose sight of it. The greatest care should be observed. But suicide amongst the insane, is much less frequent than it was, notwithstanding the increase of liberty enjoyed by them.

"On this point, some interesting information may be obtained from the registers of the hospital alluded to; in which it is stated that suicides were more common in that charity during the last, than they have been in the present century. By these records it appears that 18 cases of self-destruction occurred in old Bedlam, from the 1st of January 1750, to the 1st of January 1770, six being male patients, and twelve female; and as the total number of lunatics admitted into that hospital, during the above period, amounted to 3,629 patients, there consequently occurred one suicide in about every 202 admissions."

But, "during the twenty years ending the 31st of December 1842, not-

withstanding the total admissions, including 150 incurable, and 122 criminal lunatics, amounted to 4,676, only five suicides occurred in this royal hospital; which gives one case in every 925 insane patients admitted, or less than one-fourth the average number met with among the lunatics confined in old Bedlam, during the middle of the eighteenth century." 386.

It is worth noticing that all the five instances were those of women. This, with the fact already stated, shows a greater tendency to self-murder on the part of females than of males.

Another circumstance which tells strongly in favour of the humane management of the insane, is the comparative infrequency of escapes at present. It appears that, during the 20 years ending the 1st of January 1770, to use the expressive words met with in these official documents, 44 male and 11 female lunatics actually 'ran away' from the hospital, during that period; being one escape in every 66 patients admitted. But the escapes during the twenty years ending the 31st December 1842, were 11 men and 5 women, being only one evasion in every 292 admissions, or less than one-fourth the previous amount. Considering however, that as 14 of the patients who escaped were afterwards brought back to the hospital, in reality, only two lunatics permanently succeeded in their attempt.—The escapes (the reverse of what was observed of self-destruction) have always been more numerous amongst the males. But it seems to us that this is explicable on obvious grounds. Men are more adapted, from habits of life, their dress, &c., for scaling walls, evading pursuit, &c., than women are.

The longevity, or otherwise, of the insane is an interesting question. On this head, the statistics of Bethlem do not afford much evidence of consequence. But it would appear that insane females are more likely to attain old age than are the males:—

"For example, among the incurable men now in that establishment, seven were inmates prior to 1830, and have been so ever since; whilst on the female side, seventeen incurable patients come within a similar category. Of the latter sex, one patient has continued insane upwards of fifty years; forty-nine of which she has constantly passed in Bethlem Hospital; another female lunatic has been insane for forty-five years, and an inmate of the charity during thirty-six; and a third individual belonging to the same class has been in the asylum during thirty-eight years, having lost her reason a year before. On the other hand, although the results met with among the incurable male lunatics are somewhat different, the facts nevertheless show, that the opinion previously expressed respecting the patients' prospect of longevity, notwithstanding the existence of insanity, is supported by ample experience. Thus, of the seven male lunatics reported insane previous to 1830, one has been an inmate of Bethlem Hospital during forty-three years, another thirty-eight, and a third for the same period; but respecting the length of time they have been actually insane, the registers are silent." 389.

Dr. Webster communicates a valuable synopsis of seventy-two dissections of lunatic patients, recently made at Bethlem Hospital, by Mr. Lawrence. The account of the autopsies is derived from the written reports of that gentleman in the Register. We must content ourselves with adverting to the conclusions drawn by Dr. Webster, recommending our readers who are interested in the matter to consult the synopsis in the original.

The dissections referred to are not selected, but given in the order in which they occurred, two only having been omitted. One of these was

of a female patient who died of strangulated femoral hernia—the other of one who died of diseased lungs. In neither was the head examined.

"Some pathological changes of structure, more or less evident, were found in the brain or membranes of the whole seventy-two dissections reported, of which it may be stated, as a summary, that 55 cases likewise exhibited diseased alterations of structure of some kind or other in the organs of the chest, whilst only 14 patients showed any morbid appearances in the abdominal viscera." 412.

It must however be stated, that the abdomen was not opened in every instance, which, of course, throws some doubt upon the subject. But to proceed.

"In 59 cases, there was infiltration of the pia mater. In 59, turgidity of the blood-vessels of the brain and membranes. In 41, effusions of water in the ventricles. In 27, water was met with at the basis of the brain. In 19, bloody points on the cut surfaces of the medullary substance. In 16, thickening and opacity of the arachnoid coat. In 14, the colour of the medullary or cortical substance of the brain was altered from its natural hue to brown, pink, grey, violet, ochre, or white. And in 13 cases, there was an effusion of blood in the brain. Besides these diseased appearances, various other alterations of structure were met with in particular patients; such as effusion of pus on the brain; changed consistence of its texture; greater dryness than usual of the membranes; flattening, a shrunk, or a swollen state of the organ itself; with other changes different from a normal condition; for an account of which I would refer to the synopsis, to avoid superfluous repetition." 413.

We would observe that the ages of the patients, at the time of their death, is not mentioned. This seems to us a material omission, in estimating the value of the pathological change. Many of those set down in the synopsis are such as are commonly met with in persons advanced in life, independently of derangement of the intellectual functions—sub-arachnoid effusion and thickening—turgidity and congestion of the cerebral veins.

"Although diseased alterations of structure were not so frequently met with in the organs of the chest, as in the brain and its membranes, nevertheless, 55 insane persons in the above list of dissections exhibited changes of a morbid description in the thorax. Indeed, the apparent cause of death, in many of the patients, could be clearly traced to disease in the organs of respiration. Of the 55 instances of pectoral disease met with, on examining the bodies after death, 43 cases showed either recent or old adhesions in the chest, and 31 had the lungs consolidated. In 24, suppuration had commenced. In 15, the pleura or lungs bore marks of recent or previous inflammation. In 12 cases, there was effusion of lymph into the pleura, &c. In 9, considerable effusion into the bronchi and air-passages. In 9, the lining membrane of the trachea and bronchi was deep red. In 8, tubercles were met with. In 6, the lungs had assumed a dark, or blackish tint. And in 7, the lungs did not collapse when the chest was opened." 414.

The alterations of the abdominal viscera were not numerous. "The liver was found to be affected in five cases; dropsical effusion had taken place in three patients; and in three other cases, there appeared decided marks of recent and violent inflammation of the contents of the abdomen; in two of which examples, the intestines had actually given way, so as to allow fæcal matter to escape into the peritoneal cavity; and a similar re-

sult would have likely supervened in the other case of intestinal inflammation, had the patient lived for a longer time."

Dr. Webster indulges in few remarks. His opinions are so briefly stated that we transcribe them.

"Considering the present communication to have already much exceeded the limits originally proposed, I will not attempt to discuss cursorily the important question which now occupies many pathologists, regarding the rationale of the diseased appearances usually met with in the brains of lunatics on dissection after death, namely, whether the morbid alterations of structure, then observed, be the cause, or only the consequence of the patient's previous mental malady. In short, whether the opinions promulgated by the section of pathological physicians, denominated 'the Anatomists,' or the views entertained by the other party, 'the Vitalists,' be the true doctrine. The former considering that the diseased alterations of structure observed in the brain produce the attacks of insanity: whilst the latter confidently assert the contrary. I therefore shall leave the decision of such important questions to others more competent than myself to give an opinion; although I must confess, the numerous illustrations now detailed, the facts recorded in medical works, as well as the reasoning of authors upon insanity, greatly preponderate in favour of the Anatomists; whose conclusions, in my judgment at least, appear to be the most rational, and quite consistent with the present state of our pathological knowledge respecting mental diseases." 416.

It certainly appears to us most rational to conclude, that, as the brain is the undoubted organ of the intellectual functions, they cannot be permanently deranged without *some* alteration of its structure. But morbid anatomy has not yet succeeded in revealing to us, in the early stages of insanity, what those alterations are. No doubt, they are sometimes appreciable enough—but, at other times, they are far from satisfactory. This can occasion no surprise when we reflect on the consequences of concussion of the brain—the insensibility, the interference with the intellectual functions, nay, the death itself of the patient, without evident cerebral lesion. The phenomena of syncope and epilepsy show the close dependence of the brain upon the circulation, and leave us to imagine how slight disturbance of the latter in its substance may affect its functions. All these considerations tend, in our opinion, to encourage the belief, that when in cases of insanity, we find no changes of structure in the brain, there may still be some of too delicate a nature to be recognised by us. And the serous accumulations, the turgescence of the venous system, and the other lesions within the cranium, so generally present in old cases of insanity, rather go to prove that the changes have advanced to more tangible degrees, than that these are merely the results of morbid action, not essentially affecting structure. Such views are borne out by the valuable paper before us.

III. Second Series of Observations on the Pathology of the Ear. Based on One Hundred and Twenty Dissections of that Organ. By *Joseph Toynbee*, F. R. S.

A former Paper of Mr. Toynbee's was intended and calculated to prove that the lining membrane of the tympanitic cavity is frequently in a dis-

eased condition. Subsequent researches have convinced him, "that the most prevalent cause of deafness is chronic inflammation of the mucous membrane which lines the tympanic cavity; and that by far the greater majority of cases commonly called nervous deafness ought more properly to be attributed to this cause. This opinion derives support from an observation made to me by Mr. Swan, that in the whole course of his multiplied aural dissections he has not encountered one single instance of disease in the internal ear; an observation which embodies the result of repeated examinations to which I have myself subjected that part of the organ."

His object, in the present paper, is to elucidate the different stages of this disease of the mucous membrane, and to point out the various morbid conditions to which it gives rise. He gives the dissections more or less in detail, that the facts themselves may be judged of. He remarks that it is singular that the greater number of the patients, when living, were not supposed to be deaf.

This cuts two ways—it may show that deafness, to some extent, is often overlooked—or it may be that these lesions of the tympanum do not necessarily occasion much defect of hearing. Be that as it may, the frequency and the nature of the lesion ought to be rightly understood.

The first point to which Mr. Toynbee alludes is—

Inflammation of the Mucous Membrane lining the Cavity of the Tympanum.

After giving a concise but ample account of the natural state and distribution of the mucous membrane of the tympanum, Mr. Toynbee goes on to observe that the changes produced in it by inflammation may be divided into three stages.

In the *first*, "the membrane retains its natural delicacy of structure, though its blood-vessels are considerably enlarged and contorted, and blood is effused into its substance, or more frequently at its attached surface. Blood has also been found between the membrane and the membrana propria of the fenestra rotunda, and in very acute cases lymph is effused over its free surface." 303.

The *second stage* is characterised by a variety of important phenomena, of which the principal are:—

"1st. A very considerable thickening of the substance of the membrane, which is often pulpy and flocculent. In this state the tympanic plexus of nerves becomes concealed; the base and crura of the stapes are frequently entirely imbedded in it; while the fenestra rotunda appears only like a superficial depression in the swollen membrane. Occasionally there is also a collection of mucus.

"2d. Concretions of various kinds are visible on the surface of the thickened membrane. In some cases these have the consistence of cheese, and are analogous to tuberculous matter; in others, they are fibro-calcareous, and exceedingly hard.

"3d. But by far the most frequent and peculiar characteristic of this second stage of the disease, is the formation of membranous bands between various parts of the tympanic cavity. These bands are at times so numerous as to occupy nearly the entire cavity. They are found connecting the inner surface of the membrana tympani to the internal wall of the tympanum; to the stapes, and to the incus. They have also been detected between the malleus and the promontory; as well as between the incus, the walls of the tympanum and the sheath of the tensor tympani muscle; and they so connect various parts of the circumference of the

fenestra rotunda, as to form a network over the membrana propria. But the place where these adhesions are most frequently visible, is between the crura of the stapes and the adjoining walls of the tympanic cavity; this, for example, was the case in twenty-four instances out of a hundred and twenty dissections—being a fifth of the number. In one dissection, the bands of adhesion were five in number: and in other instances they were so strong, that, in removing the stapes, the mucous membrane was torn from the surface of the promontory. Sometimes so broad and expanded have been these adhesive bands, as to have assumed the appearance of a membranous veil. They have also been known to contain blood and scrofulous matter. In some examples the surface of the promontory is rough, and in two instances the membrane attached to the base of the stapes was ossified, and the anchylosis of the latter to the fenestra ovalis was complete." 305.

On these facts Mr. Toynbee makes several judicious observations. He naturally thinks it impossible that many of the preceding conditions can exist without more or less functional derangement of the organ of hearing. The thickening of the membrane and deposition of mucus must interfere with the course of the vibrations towards the fenestra rotunda, and with the action of the stapes.

"The bands of adhesion connecting the stapes with the walls of the tympanum, cannot do otherwise than impede the natural movements of the former, which has very frequently been found so firmly attached to the fenestra ovalis, as to require considerable pressure with the scalpel to disengage it. Morgagni states, that he found the cavity of the tympanum intersected by numerous membranes, which impeded the movements of the ossicula; and it appears highly probable, that these bands of adhesion produce irregular movements in the ossicula. I am inclined to ascribe deafness, and many of the distressing symptoms that often accompany it, as noises like the rushing of waters, &c. &c., to the continued pressure exerted on the contents of the labyrinth by the stapes being drawn inwards, as a consequence of the formation and subsequent contraction of the adhesions. In this opinion I have been strengthened by the examination of living persons, having frequently observed, that where the membrana tympani has been removed by disease, or where the contents of the vestibule have not received any impression through the stapes (as in the instance of the latter bone being anchylosed,) the patients have heard better than those where satisfactory evidence existed, that the disease consisted in the thickened and adherent state of the membrane under consideration." 306.

The firm bands of adhesion connecting the membrana tympani to various parts of the tympanic cavity, with the implication of the muscles, must exert an influence more or less prejudicial, on the state of the membrana tympani, quoad its state of tension, which cannot fail to be injurious.

"*In the third stage* of inflammation of the tympanic mucous membrane, it becomes ulcerated, the membrana tympani is destroyed, and the tensor tympani muscle atrophied. The ossicula auditus are diseased, and ultimately discharged from the ear, and the disease not unfrequently communicates itself to the tympanic walls, affecting also the brain and other important organs." 307.

Mr. Toynbee appends an account of the dissections on which the preceding generalizations were founded. For these we must refer to the original, contenting ourselves with observing that, of 120 dissections, there were:

20 Ears in the first stage of inflammation of the tympanic cavity.
65 Ditto in the second stage.

6 Ditto in the third stage.

29 Ditto in a healthy state.

We trust that Mr. Toynbee will continue his researches, which are extremely valuable.

IV. On the Nature of the Ossification of Encysted Tumours. By *John Dalrymple*, Esq.

Mr. Dalrymple removed a small tumour from beneath the tarsal cartilage of the upper eyelid. It consisted of concentric layers of, apparently, earthy or bony matter.

"Upon examination by the microscope, the concentric layers of this tumour were found composed entirely of epithelium scales closely agglutinated together: but instead of the usual transparent and thin lamina with its central nucleus, they were thickened and hard, and contained granular earthy molecules, which could be removed by immersion in weak muriatic acid. No amorphous earthy deposit existed around or among the scales, but the whole was composed of this epithelium, opaque, of a light brown colour, with a clear and large central nucleus.

"The sebaceous or cheesy matter of encysted tumours, it is well known, consists of desquamated epithelium, somewhat disintegrated and mixed with oily globules; but here the mass may be said to have been ossified epithelium, or, in other words, these cells were filled with granular earthy deposit." 239.

Mr. Gulliver found the earthy material principally phosphate, with a trace of carbonate of lime. Mr. Dalrymple knows of no similar observation in regard to epithelium cells. Mr. Bowman, indeed, has recorded the great increase of oil globules in the cells of fatty liver; and Mr. Gulliver of biliary matter in the epithelial cells of the same organ affected with jaundice. But in both these instances the morbid condition consisted of an increase of what originally existed in a normal state.

V. An Account of a Case in which a Foreign Body was lodged in the Right Bronchus. By Sir *Benjamin C. Brodie*, Bart. F. R. S.

This case has attracted so much attention, both with the profession and the public, that its management cannot be said to have *added* to (that would be difficult,) but it certainly sustained the reputation of Sir B. Brodie, as a practical surgeon.

On the 3d April, 1843, Mr. B. playing with a half-sovereign in his mouth, it slipped behind the tongue, and a violent fit of suffocative cough ensued. Vomiting followed. In the course of the evening he coughed moderately at intervals. Some soreness and stiffness of the throat remained for 24 hours, after which he employed himself as usual, and even entertained some friends at dinner. We find it difficult to abbreviate *usefully* the particulars which follow, and shall therefore quote them entire.

"On the 6th of April, he was again troubled with a cough. On the 7th he went on a journey into the country, and was more or less exposed to a cold north-east wind for two days and nights. The cough now became aggravated. He

expectorated some mucus slightly tinged with blood, and small portions of a substance answering to the description of a thin membrane. He experienced, also, a pain in the right side of the chest, referred to a spot corresponding to the situation of the lower portion of the right bronchus.

"On the evening of the 9th of April, he took two aperient pills, one of which was rejected by vomiting some time afterwards. In the act of vomiting, he experienced a sensation as if a loose substance had shifted its place in the chest; and for some time afterwards the cough was much relieved, and the pain in the chest entirely ceased.

"On the 11th of April, the cough was again troublesome. There was little or no expectoration. At this time the chest was repeatedly examined, with the stethoscope, by Dr. Seth Thompson, but no unusual sounds were detected in any part of it.

"On Monday the 17th of April, Mr. B. again went into the country, exposed to a cold easterly wind. On his return to London, the cough was again much aggravated.

"On the 18th of April, by the advice of Dr. Seth Thompson, he consulted Dr. Chambers, and afterwards myself. From the detail of the symptoms, we were all of us led to believe that the half-sovereign had passed into the trachea, and that it remained lodged in the right bronchus.

"On the 19th, this opinion seemed to be confirmed by a very simple experiment, which Mr. B. had himself made in the interval. He had placed himself in the prone position, with his sternum resting on a chair, and his head and neck inclined downwards, and, having done so, he immediately had a distinct perception of a loose body slipping forward along the trachea. A violent convulsive cough ensued. On resuming the erect posture, he again had the sensation of a loose body moving in the trachea, but in the opposite direction, that is, towards the chest.

"On the 20th, I saw the patient again, with Dr. Thompson. I now suggested that a further consultation should be held on the case; and, accordingly, on the following day there was a meeting of Dr. Chambers, Dr. Seth Thompson, Mr. Stanley, Mr. Aston Key, and myself. The chest was again carefully examined by means of the stethoscope, but no difference in the state of the respiration could be detected. The other indications of the existence of a foreign body in the air-passages, however, seemed to be so strong, that no one entertained any doubt on the subject. At this meeting it was agreed that the experiment which Mr. B. had himself made, should be repeated in a more complete manner. Accordingly, on the 25th of April, he was placed in the prone position, on a platform made to be moveable on a hinge in the centre, so that on one end of it being elevated, the other was equally depressed. The shoulders and body having been fixed by means of a broad strap, the head was lowered until the platform was brought to an angle of about 80 degrees with the horizon. At first no cough ensued; but on the back, opposite the right bronchus, having been struck with the hand, Mr. B. began to cough violently. The half-sovereign, however, did not make its appearance. This process was twice repeated, with no better result; and, on the last occasion, the cough was so distressing, and the appearance of choking was so alarming, that it became evident that it would be imprudent to proceed further with this experiment, unless some precaution were used to render it more safe.

"On the 27th of April, in a consultation of Dr. Seth Thompson, Mr. Aston Key, and myself, it was agreed that an artificial opening should be made in the trachea, between the thyroid gland and the sternum. In proposing this, we had a two-fold object; the one, that if the coin were lodged in any part from which it might be safely extracted by the forceps, this method might be had recourse to; and the other, that, if relief could not be obtained in this manner, the artificial opening might answer the purpose of a safety-valve, and enable us to repeat

the experiment of inverting the body on the moveable platform, without the risk of causing suffocation. The operation was immediately performed by myself, with the assistance of Mr. Aston Key and Mr. Charles Hawkins; and on it being completed, some attempts were made, both by Mr. Key and myself, to reach the coin with the forceps introduced through the opening. The contact of the instrument with the internal surface of the trachea, however, induced on any occasion the most violent convulsive coughing. The coin was not seized, nor even felt; and our apprehensions of producing some serious mischief were such, that we did not deem it prudent, at that time, to persevere in our endeavours to remove it.

"On the 2d of May, we again made some trials with the forceps, but always with the same result. A violent convulsive action of the diaphragm and abdominal muscles ensued, on each introduction of the instrument; and the danger of groping in the bronchus, under such circumstances, surrounded as it is by the most remarkable assemblage of vital organs in the whole body, appeared to us to be so great, that we did not think ourselves justified in proceeding further. We were the more inclined to abandon the experiment with the forceps, as we had a strong expectation that a recurrence to the first experiment, now that the safety-valve was established, would prove successful.

"On the 3d of May, a consultation was held with Mr. Lawrence and Mr. Stanley. They entirely concurred in the views of Mr. Aston Key and myself, and it was agreed that nothing more should be attempted until Mr. B. had sufficiently recovered from the effects of what had been already done, to admit of his being again inverted on the moveable platform.

"A probe, or director, was occasionally introduced into the wound of the trachea, with a view to keep it in an open state; and, on the 13th of May, the patient having been placed on the platform, and brought into the same position as formerly, the back was struck with the hand; two or three efforts to cough followed, and presently he felt the coin quit the bronchus, striking almost immediately afterwards against the incisor teeth of the upper jaw, and then dropping out of the mouth; a small quantity of blood, drawn into the trachea from the granulations of the external wound, being ejected at the same time. No spasm took place in the muscles of the glottis, nor was there any of that inconvenience and distress which had caused no small degree of alarm on the former occasion.

"It is unnecessary to describe the progress of the case afterwards. On the 20th of May, Mr. B. had sufficiently recovered to be able to go for change of air into the country, and when I saw him, about a fortnight afterwards, the wound of the neck was nearly healed." 292.

The points of this case are so tersely and simply given in the original, that their practical effect would be marred by abbreviation, which, under such circumstances, would be mutilation. The case itself must be admitted to be highly interesting, and, as is well known, produced considerable sensation, at the time of its occurrence.

The observations of the author, appended to the narrative, are, as usual, distinguished by their practical character. Sir Benjamin Brodie remarks:—

"The different results which foreign bodies produce when admitted into the trachea, may be referred chiefly to the differences of their size, weight, and figure. If it be of large dimensions, the foreign body will be lodged, and probably impacted, in the trachea itself, causing, in the first instance, more or less obstruction to the respiration, which becomes aggravated afterwards by the too abundant secretion of mucus from the lining membrane. If it be of small size, it will descend to the lower part of one bronchus (generally the right,) or even into one of the subdivisions of it, of course obstructing the respiration in a less

degree. If it be of light weight, and of moderate size, having no great irregularity of figure, on every fit of coughing it will be made to ascend to the glottis, threatening, and probably at last inducing suffocation. If it be more ponderous, it will not ascend in the act of coughing, and the inconveniencies which it causes, and the immediate danger, will in one respect be less." 292.

But the records of surgery amply prove that these cases are ultimately fatal, if the foreign body remains, from disease of the lungs induced by it.

The narrow space which a half-sovereign would occupy in the bronchus, explains the failure of the stethoscope as a means of detecting it. Nor is this case singular in that respect.

"I have already stated, that in making the artificial opening into the trachea, we had two objects in view; and it has been shown, that in the attainment of one of these, our success was as great as our most sanguine desires could have led us to anticipate. Although, before the opening was made, the experiment of inverting the patient on the platform was productive of a most distressing and long-continued spasm of the muscles of the glottis, no such spasm occurred afterwards. The half-sovereign escaped through the aperture of the glottis, as easily as it would have done in the dead body; and the small quantity of blood which was ejected at the same time, and which had been manifestly furnished by the granulations of the external wound, sufficiently explains how this happened: as it is not to be supposed that blood could have been drawn into the trachea without the admission of air into it at the same instant. As connected with this part of the case, it may be well here to mention, that the distressing sensations arising from congestion in the vessels of the brain, while the head was in a depending position, were immediately and completely relieved by supporting the forehead with the hand, so as to keep the occiput in some degree inclined towards the back of the neck.

"In the other object, for which the artificial opening was made, it must be confessed that we were wholly disappointed. In the dead body, with the assistanca of proper forceps, there is no great difficulty in extracting a sixpence or a half-sovereign from the bronchus. But even here it is not always accomplished on the first trial. If the forceps be, as they ought to be, carefully and gently handled, the blades may actually slide over the surface of the coin without any sensation being communicated to the hand of the surgeon which will make him aware of the circumstance: or they may be passed downwards on one side of the bronchus, while the coin lies on the other. In the attempt to seize it, the forceps sometimes grasps the bifurcation of the trachea, or one of the subdivisions of the bronchus, instead of the foreign body." 295.

The depth to which the instrument must be introduced, and the convulsive action of the diaphragm and abdominal muscles, and violent cough, occasioned by its employment in the living body, sufficiently explains the difficulty. Contrary to the observations of M. Majendie on what happens in experiments on dogs, the effect, in this instance, was nearly the same, whether the instrument was directed upwards towards the glottis, or downwards towards the lungs. Sir Benjamin observes, how easy it would be to do mischief with the forceps in the bronchus, how careful the surgeon should be with them. When the foreign body is in the *trachea*, the case is different. Its removal by the forceps can then be safely and easily accomplished.

"But under all circumstances, we have a right to conclude, that an artificial opening in the trachea must contribute to the security of the patient, and that

the establishment of it at an early period, is the first and most important duty of the surgeon." 297.

A sentiment which, we think, will be cordially subscribed to.

VI. OBSERVATIONS ON THE MEDICINAL PROPERTIES OF THE CANNABIS SATIVA OF INDIA. By *John Clendinning*, M.D., F.R.S., Physician to the St. Marylebone Infirmary.

Looking at disease abstractedly, observes Dr. Clendinning with much justice, no indications are more important than these :—

"1. The alleviation of acute pain, whether neuralgic, spasmodic, or inflammatory, in its origin; and

"2. The securing adequate daily rests in sleep by procuring, artificially if necessary, a suspension at least of any morbid actions or conditions that might militate against refreshing repose. Almost all the suffering, and great part of the danger, of sickness may be referred to uneasy sensations of one sort or other, the irritated nervous tissues re-acting throughout the economy on the nutrient functions, deranging the elementary affinities in the blood, undermining the organic powers, and ultimately ruining the general health. Looking again at disease as we see it in clinical practice, there are no medicinal substances of more interest or importance in its treatment than such as are fitted to fulfil these two indications. In the records of medicine there are few results of professional research more striking than the beneficial effects obtained from opium in various diseases." 189.

The minor narcotics, henbane, prussic acid, &c. &c., have their uses, but none are on a par, in power, with opium. Unfortunately it has, as is well known, its drawbacks—its tendency to constipate, to arrest secretions, to affect the head. It has long, therefore, been a desideratum to find a remedy, possessed to any considerable extent of the virtues of opium, unaccompanied with its defects. Dr. Clendinning is of opinion that such a remedy is to be found in the Ext. Cannabis Indicæ.

"This agent seems, like opium, to have been known to the Orientals, and to have been in use as an article of voluptuous excitement amongst the Hindoos for a long series of ages. It was first scientifically tested, so far as I know, by Dr. O'Shaughnessy, of the Medical College, Calcutta; that gentleman was also the first, I believe, to lay the results of accurate observation before the public. The *churrus* (or resinous extract of the *gunjah* or dried Indian hemp) was found by Dr. O'Shaughnessy to possess very striking powers as an antispasmodic, as a nervine stimulant, and as an anodyne and hypnotic, and in some respects to excel opium in virtue, especially as an antispasmodic in tetanus, &c. He also observed that it was wholly, or for the most part, free from the deranging action on the stomach and bowels that so limits the utility of opium." 191.

Mr. Ley has been the first, in this country, to publish any facts upon the subject; and they lend confirmation to Dr. O'Shaughnessy's—while Dr. Clendinning has followed in the same wake.

Dr. C. reports, first, fifteen miscellaneous cases. *The first* was that of a medical man, in whom it procured sleep, without any uncomfortable consequences—*the second*, that of a woman with abdominal pains, consequent upon ovarian dropsy—*the third*, that of a nurse with sleeplessness from asthma—*the fourth*, that of a lady with a painful and inflamed cut

over the wrist—*the fifth*, that of a cook with bad nights from cough and tuberculation of the lung—*the sixth*, a rheumatic case—*the seventh*, one of complicated thoracic disease—*the eighth*, one of rheumatic gout—*the ninth*, chronic cough and tuberculation of the lung—*the tenth*, disease of the lungs—*the eleventh*, cough, nervous irritation, and probably congested upon the tuberculated lung—*the twelfth*, much pain in the bowels, succeeding purgative medicine, and, on another occasion, influenza and swelling of the face—*the thirteenth*, (in a medical practitioner,) sleeplessness from cough—*the fourteenth*, rheumatism—*the fifteenth*, hooping-cough.

Now, in all these cases, the relief from pain, or from restlessness, or from want of sleep, or from cough, was satisfactory. In none was any unpleasant effect occasioned. Some were accustomed to the use of opium—the cannabis sativa answered as well. Some suffered from opium—they did not suffer from the cannabis. The dose was generally from ʒ ss. of the tincture upwards, if a single one—ten to twenty minims at intervals if repeated ones.

"*Fever Cases.*—In the course of the week commencing Feb. 24, I received into my wards half-a-dozen or more cases of spotted synochus and typhus of an asthenic character, with feeble often jerking pulse, dry tongue, copious appearance of spots and stigmata, especially about the body; low delirium, and, in nearly all the cases, tremulousness of the tongue and limbs, amounting in several to subsultus and jactitation. They were cases in which little was indicated in the way of active medication. Quietude, ventilation, dilution, and gentle action on the abdominal functions, with cold to the head, were the means first to be thought of; and afterwards moderate stimulation was likely to become necessary. The former views were met by the effervescing draught every four hours; by shaving the head and applying cold lotions, &c.: and the latter by wine in moderate quantity where it was deemed necessary. The fever was a low nervous one, pathologically allied to a common form of delirium tremens, and analogy suggested the use of some narcotic more efficient in conciliating sleep than any of the vinous kind. It appeared to me that opium was inadmissible. On the one hand the secretions were much deranged already, while the mischief from disturbed nights appeared by no means sufficiently pressing to warrant the use of so equivocal an agent, except in combination with mercury, aloes, or other corrective of disordered abdominal secretions. Now, the cases before me exhibited the usual tendency to diarrhœa, so that I considered it inexpedient to use any thing by which active purging might be excited. Under those circumstances I thought that I might give the hemp a trial." 205.

Three cases are given in detail. Two other (fatal ones) are mentioned. It seems unnecessary, after the general description of our author, to go into the particulars. Enough that the cannabis appeared to fulfil the indication—conciliating sleep without inconvenience. Dr. Clendinning's summing up appears to be impartial, and is highly favourable to the medicine experimented on.

"I have no hesitation in affirming," he says, "that in my hands its exhibition has usually, and with remarkably few substantial exceptions, been followed by manifest effects as a soporific or hypnotic in conciliating sleep; as an anodyne in lulling irritation; as an antispasmodic in checking cough and cramp; and as a nervine stimulant in removing languor and anxiety, and raising the pulse and spirits; and that these effects have been observed in both acute and chronic affections, in young and old, male and female." 209.

And he adds :—

"I have hitherto experienced no difficulty in keeping subjects of pulmonary disease under the constant operation of a narcotic, which repressed to a most important extent their mischievous cough, and secured them refreshing rest, without causing in the least degree anorexia or indigestion, or, with one or two doubtful exceptions, any inconvenient result or sensation whatever. Thus, again, I have repeatedly had a subject of articular rheumatism or severe bronchitis under the double influence at once of a diuretic-laxative medication and of an anodyne-antispasmodic; the saline solution, with or without colchicum, correcting the blood and secretions unimpeded by the narcotic, whose whole influence appeared to be expended on the tissues, seats of pain and irritation. For a third example I may refer to the use of the hemp in low fever, in securing the enjoyment of that great restorative in acute disease—viz tranquil sleep; and producing this benefit without any neutralizing inconvenience, without causing constipation, nausea, or other effect or sign of indigestion, without headache or stupor." 210.

The per-contra would appear to be light enough :—

"The only class of cases in which I have found the hemp not to act as a competent substitute for opium, is in the intestinal fluxes, such as the diarrhœas of phthisis and of low fever in advanced stages, of old ulcerations of the bowels, &c. and in dysenteric affections. In such cases, opium is the great controlling remedy of the narcotic class, and admits of no deputy. And in such cases, happily, opium produces in judicious hands none of its inconvenient effects, and may usually be safely and freely employed." 210.

We would recommend our readers to give trial to the medicine, and we hope it will be found to realize the expectations raised by such reports as the preceding.

VII. On the Anatomical Characters of some Adventitious Structures, bieng an Attempt to point out the Relation between the Microscopic Characters and those which are dicernible by the naked Eye. By *Thomas Hodgkin*, M. D.

In the 15th volume of these Transactions Dr. Hodgkin inserted a very interesting essay on compound serous cysts, their structure, mode of formation, &c. In this essay the Doctor attempted to extend the principle of the formation of these compound serous cysts to explain the structure of sarcomatous and carcinomatous tumours. Professer Müller,* who expresses his concurrence generally in the perfect correctness of Dr. Hodgkin's descriptions of, and observations on, the nature of these compound cysts, will not however at all admit the extension of the principle of the formation of these to sarcomatous and carcinomatous tumours. In the present communication Dr. Hodgkin endeavours to prove the correctness of his former views, stating that continued observation has confirmed the constant presence of the type of compound serous cysts in a class of adventitious structures which comprehends the whole family of cancerous diseases. Müller

* See his work on the Nature and Structural Characteristics of Cancer and other Morbid Growths.—*Reviewer*.

states, that the principle of the development of sarcomatous and carcinomatous tumours, as ascertained by observations with the compound microscope, is perfectly different in its character. Their ultimate elements, he says, are indeed cells, often permanent, so small as to be distinguishable only by employing a high magnifying power; but these cells were never observed by Dr. Hodgkin; as the very important researches regarding the function and development of nucleated cells had either not been made, or were generally unknown in this country, at the time when Dr. Hodgkin made his former communication on the subject of these cysts. We shall now present a condensed analysis of Dr. Hodgkin's paper. He first enumerates the objects which arrest attention, when a portion of one of these (adventitious) structures is placed in the field of the microscope: these are—1st. Nucleated cells of various shapes and sizes. 2. A substance having a filamentous character. 3. Granular matter without definite shape, the particles of which are often smaller than those of the nucleated cells, but by combination forming masses of comparatively large size. 4th. Very minute spherical particles resembling fat globules, and also much disposed to aggregation. 5th. Crystals, having for the most part a rhomboidal character, and often forming mackles. 6th and lastly. A transparent fluid, in which these objects are contained, and which is made evident by the motion which it permits to take place between them. He now notices each of these separately, commencing with the *nucleated cells*, both by reason of the constancy of their presence, and of the great importance now attached to them—in some specimens these cells appear to constitute the greater part of what is placed under the microscope, whilst in others they are so rare and indistinct, that it is with difficulty a cell or two can be detected amidst abundance of filamentous or amorphous granular matter—these cells are sometimes circular, sometimes oval. They often assume an elongated shape, so as to present a caudate appearance, when the prolongation takes place in one direction. Frequently prolongations takes place from both ends, one or both extremities of their prolongations being occasionally bifid. These several forms in the cells are frequently met in the different varieties of disease included under the group of adventitious structures, apparently without any necessary connexion with such variety. They are most distinctly circular in specimens of cerebriform cancer, and also in those of true scirrhus. The caudate and other elongated forms are supposed to depend on the transformation of nucleated cells into a true tissue. With respect to size, also, the nucleated cells differ much, this difference being found to exist not only between cells of one specimen and another, but also between those of the same specimen. The nuclei also differ in respect of both absolute and relative size. There is also a difference in the brightness and distinctness of the nucleus. There is sometimes the appearance of a nucleolus within the nucleus, and besides one or more distinct nuclei, the cell itself may appear to be made up of minute granular matter.

He next notices the filamentous substance, which seems to have given the name to one form of these structures, described by Müller, as *carcinoma fasciculatum seu desmoideum.* In some specimens little or none of this substance is traced, especially when the object is taken from the soft contents of a distinct cyst, whilst, in other examples, it appears to consti-

tute the major part, though taken from a similar situation. Sometimes the fibrous character is distinct and well-defined, nearly resembling that of perfect cellular membrane; in other instances it is much more obscure, more nearly resembling the appearance presented by the fibrine of recently-coagulated blood, in which there is a distinct transition from granular matter. The filamentous matter may sometimes have formed a part of one of the cysts or membranes which enter into the composition of these tumours: in other instances, however, where the object is selected from a central part, filamentous matter will still be perceptible. Such cases will throw light on the question, whether fibres or filaments are of necessity produced by transition from nucleated cells. Dr. Hodgkin is induced to think, by the appearances observable in some of these growths, that fibres are not necessarily formed by the progressive elongation of perfect cells, but rather from the amorphous matter which accompanies them.*

The *granular* or *amorphous matter*, which forms one of the constituents of these tumours, is constantly present, but in very different proportions. It frequently constitutes the major part. With respect to the *spherical particles* entering into the composition of these tumours, Dr. Hodgkin is inclined to consider them as oil or fat globules. They may be found not only in the substance of a tumour, whether of scirrhous firmness, or of the soft consistence of cerebriform cancer, but also in the fluid contained in more manifest cysts. By being closely aggregated, they generally form an irregular or imperfectly-globular mass. These aggregations are interesting, not merely on account of their constant presence in adventitious structures, but from their probable connexion with the fatty degeneration of normal structures. *Crystals* are very frequently, but not constantly present in these structures. They generally appear as plates made up of the aggregation of a few rhomboidal crystals. They were discovered by Müller in the discharge occasioned by the breaking-up of a cancerous tumour. On learning the discovery of these crystals by Müller, Dr. H. immediately recognized in the fact a fresh analogy between these adventitious structures and the compound serous cysts so frequently developed in the ovary or its vicinity, and in which he had seen that cholesterine may form crystalline masses resembling the purest biliary calculi of the same substance. He is therefore induced to think that these crystals may be derived from oil or fat globules by a process not of a vital character. Mr. G. Gulliver has discovered a similar crystallizable fatty matter in the coats of arteries, and in several other situations. With respect to the *transparent fluid* which forms one of the constituents of these structures, it is probably not merely derived from, but resembles the *liquor sanguinis*, and yields, like it, elementary constituents for the development of the different structures connected with it. It is generally admitted that none of the objects now enumerated, and observed to exist as constituents of adventitious structure, can be referred to for the purpose of distinguishing one form of these structures from another; nor can chemical analysis be regarded as offering

* G. Valentin states decidedly, in the form of a proposition, in his account of the development of the tissues, that "the cells and their nuclei arrange themselves in longitudinal lines; the cell-walls coalesce in lines, and, at the cost of the nuclei, form themselves into fibres."—*Reviewer.*

a more trustworthy criterion. We are, therefore, says Dr. Hodgkin, reduced to the necessity of employing an assemblage of characters to distinguish the malignant from other abnormal growths. The peculiar anatomical structure dependent on the production of compound cysts, is so constantly present, and leads to characters so essential to the correct description of individual specimens, that on these grounds he is disposed to attach much importance to it; another motive which influences him in doing so is the manifest relation which it may be shown to bear to the nucleated cellular origin pointed out by Müller. Dr. Hodgkin assigns several causes for the difficulty of admitting the existence of a cystiform structure. The principal of these causes he states to be the production of more or less intimate adhesion between the different membranous surfaces by which a group of compound serous membranes, having completely a reflected character, may be converted into a solid mass. Maceration, which is resorted to prior to dissection, is another source of difficulty. Under the influence of this process, soft and tender structures break down and become blended with each other, and with the fluid, of which they had, at one time, formed the distinct receptacles. In this way, the well-defined vascular cysts may be converted into an irregular mass of filaments and bloodvessels—the same conversion may have occurred even during the life of the patient, by the natural progress of decay to which those structures are liable. Another source of the difficulty experienced has been taking for examination a part of the tumour so removed from the mass as not to exhibit the whole, or even the part of any principal or subordinate cyst, in which the structure in question could be demonstrated.

Dr. Hodgkin, having detected no exception to the existence of this type of cysts in the whole group of adventitious structures to which he ascribed it, naturally concluded that it depended on a law of formation common to them all, and offered as a speculation what he regarded as the probable *modus operandi* of such law. When, however, he became acquainted with the cell-theory, and with Müller's researches, which demonstrated the distinct existence of cells in the adventitious structures in question, he continued his inquiries on the subject, and it appeared to him that the adventitious structures having the type of compound serous membranes admitted of a much more satisfactory reference to the production of cells than any of the normal tissues which had been studied in their transition from cytoblasts and nucleated cells. In fact, the most perfect specimens of compound serous cysts seemed so completely to resemble a collection of nucleated cells with nucleoli, that the Dr. would have readily adopted this explanation and given up his own conjectures as to the operation of coagulation on the surface of a plastic fluid, had he not witnessed some striking facts strongly opposed to this application of the cell-theory, whilst they were in perfect accordance with that of coagulation. One of these facts is contained in his former communication to the Society, and another, and very remarkable one, is contained in the Guy's Hospital reports, No. IV. in an account of a dissection of a patient of Dr. Ashwell's.

It being unphilosophical to admit two causes for a phenomenon, when one will suffice, Dr. Hodgkin felt somewhat staggered by the apparent necessity of admitting the two principles, viz. the cell-theory, and the coagulation principle. Careful attention, however, to the phenomena pre-

sented by cells pointed out by Dr. Barry, in his account of the early development of the mammiferous ovum, seemed to furnish the desired solution, and not merely to combine the two modes of formation above alluded to, but to throw light on other parts of the subject. In the development of the ovum the nucleated cells appear to perform the double purpose of preparing organizable matter, hyaline, by a process of assimilation, and of giving origin to important parts by superior development, which, in this state, exert an important influence on the surrounding materials derived from other cells, inducing the coalescence of the hyaline, which they have furnished. From this it would appear that only a small number of the nucleated cells carry out their own development, but that the majority are the preparers and contributors of the pabulum of the new growth. Now the coalescence of the particles of the hyaline, appears to take place precisely in such a manner as to produce the external coagulation, on which, from observation, independently of any theory, Dr. Hodgkin has been induced to insist. Hence it is probable that some of the more enlarged cells observed in the microscopic examination of these adventitious growths, become the means of determining the coalescence around them, of the hyaline furnished by other cells, and thus account for the great tendency to the production of cysts having the compound character. With this view of the subject it is not surprising that, under the microscope, a small portion of soft matter taken from a malignant structure should often suggest a striking resemblance to the blood of some of the inferior animals, seeing that the compound of nucleated cells, granular matter and fluid, has to perform the part, in the adventitious structures, which the blood itself does in the ordinary structures. This view, Dr. Hodgkin observes, stands decidedly opposed to the theory, that the peculiar matter of cancer and other allied diseases exists as such ready-formed in the blood, from which it is eliminated at those parts at which those tumours are formed. With respect to the vascular organization of these adventitious structures, he thinks that it may be fairly concluded, from such observation as the naked eye may sometimes enable us to make, that there must be some analogy between the production of vessels in these structures, and their formation in cellular pleuritic adhesions, and other comparatively normal adventitious structures. He is of opinion that the new vessels in new parts, are the prolongation of the vessels of contiguous older parts, and not a production of independent vessels, which subsequently inosculate with those in their vicinity. Dr. Hodgkin, though he has, in accordance with the ordinary phraseology, employed the term nucleated cells in speaking of those corpuscles which present one or more brightish spots within their circumference, and have a circular, or more or less elongated figure, still has some difficulty in admitting the cellular character, as neither when they are entire, nor in their breaking-up, do they seem to exhibit any defined capsule or membrane.

The application of animal chemistry has not, up to the present time, furnished us with any sufficiently strongly-marked distinctive characters to constitute the boundaries of a class in the case of those adventitious structures, though it may indicate varieties of great practical importance. A great obstacle to our deriving a satisfactory test from chemical analysis, arises from the progressive changes which both solids and fluids undergo

in the course of their production, and also when produced. Dr. Hodgkin now proceeds to answer some objections, urged by Dr. Carswell, against development through the production of compound serous cysts. Dr. Carswell observes, that there is an ambiguity as to whether the cysts produce their contents or are produced by them, and that, in the latter case, their importance is over-rated, and that the adoption of the reflected serous membrane as a type, attributes to the adventitious structure a position which, in fact, is exterior to the investing membrane, precisely as the heart is not laterally inclosed in the pericardium. Our space will not permit us to follow Dr. Hodgkin through his answers to the objections. We shall only observe that these answers are characterized by his usual tact, shrewdness, and ingenuity.

We shall now close our analysis of this valuable paper by briefly stating the conclusions which the Dr. wishes to be drawn from the observations contained in it. 1st. That continued observation has confirmed the constant presence of the type of compound serous cysts in a class of adventitious structures which comprehends the whole family of cancerous disease. 2dly. That the microscopic examination of these tissues does not furnish perfectly conclusive tests of any particular form of adventitious structure to which a specimen may belong, but that it demonstrates the application of the nucleated cell-theory, whilst it is fatal to that of cancerous matter being formed in the blood, and eliminated at the spots at which the tumours become manifest. It therefore furnishes an important argument in favour of operations. 3d. That to have a complete view of the mode of production of these structures, we must combine the cell-theory of Schwann and Müller, the coagulation-principle suggested by himself, and the process of organization investigated by Kiernan. 4th. That chemical analysis, however interesting, affords an imperfect criterion. 5th. That, in operating for the removal of a tumour of this class, we should leave behind none of those minute cysts which often form granules in the surrounding cellular membrane. 6th. That the infiltrated form of these diseases occurs in the structures in the neighbourhood of the purely adventitious growth, when these structures have been the seat of inflammation, and that the chances of success from operation are much diminished when such surrounding inflammation has taken place.

VIII. Some Account of an Epidemic which prevailed at Teheran, in the Months of January and February 1842. In a Letter to Geo. Jos. Bell, M.D. Travelling Fellow of Oxford. By *C. W. Bell*, M.D., attached to H. B. M.'s Mission at the Court of Persia.

It appears that a curious new disease has appeared and spread through different parts of Teheran. A complaint in some degree similar was noticed about the same time in Baghdad.

The first case that Dr. Bell witnessed was fatal. It was that of Syad Khan. "Having stomach-ache, to which he was subject, he took ten drops of the oil of peppermint, instead of the spirit, which he was in the habit of taking, and it produced inflammation of the stomach. I applied 30 leeches to the epigastrium, by which, and other means, the inflamma-

tion was subdued. He was convalescent and in good spirits, only considerably reduced in strength, when he was suddenly attacked, about ten at night of the 20th of January, with a fit resembling epilepsy; became insensible, and died in half an hour. I saw him in this state, convulsed, the mouth drawn to one side, moaning and insensible, pulse quick, but rapidly sinking. I was wholly at a loss to account for his death, and imagined fifty things; but a *post-mortem* examination was out of the question."

Two cases, which terminated in recovery, are related next. The following is a condensed statement of the order of the symptoms in the first.

Case.—Mr. K., aged 40, accountant. Headache—numbness of left foot. Midnight, headache—spasms—numbness of left leg and arm. Same symptoms next day—pulse full. Recurrence of symptoms on 2d, 3d, and 4th nights. 5th day, epileptic fit. Two violent ones, demanding free venesection that night, followed by excruciating headache. After this, recovery. The treatment consisted of purging, quinine, bleeding.

The next case was of a very similar character. Dr. Bell, after detailing it, observes:—

"I have stated these first cases that occurred to me in detail, to show how completely I was at a loss as to the treatment which ought to be pursued. At length, three people, under my own eye, were attacked almost at the same hour, with fits, which I could not help recognising as similar to those of which I had seen Syad Khan die. On that day, numbers had also applied to me with nervous pains, headaches, pain in the region of the heart, and nightly sleeping of the hands and feet. Venesection seemed to do harm, as well as all reduction of the system: in the two first cases, loss of blood was followed by fatal attacks. In the third and fifth, when blood had been drawn, the disease was severe. In Mr. R.'s case, quinine, as I administered it, was evidently not to be depended upon. Purgatives seemed to do no good; and in Rasool's case to do harm. What was then to be done?" 231.

He determined to try assafœtida as an antispasmodic during the fits, and to *hope* something from iron. These remedies seem to have answered completely. Several cases are related in which they appear to have acted admirably. The following is one of the shortest, but not more striking than several, indeed not so much so as some.

"M. T———, a French cavalry officer, of florid complexion, having, about the time when this complaint first made its appearance, what were thought to be threatenings of apoplexy, was bled by the advice of the medical officer to the Russian mission. After this he had a very severe fit, remaining many hours insensible; his servants continued assiduous in rubbing him, and he came to himself. He was again bled. Every night he had sensations of numbness of the leg and arm of one side, and twice again had fits, but less severe. He had suffered thus for eight or ten days, when he consulted me: I gave him two scruple doses of carbonate of iron; the first with six grains of scammony to be taken at noon, the other in the evening. That night he had no return of the numbness, nor did he experience it afterwards. 234.

Almost every one in the neighbourhood was affected for some nights with sleeping of the leg or arm of one side. Dr. Bell experienced it him-

self, with unnatural excitement of the heart. These all subsided after taking a dose of iron.

A curious contribution to that curious chapter—the history of epidemics.

Essay on the Physiognomy of Serpents. By *H. Schlegel.* Translated by *Thomas Traill,* M. D.

Notwithstanding the singularity of the title, the reader will find this a very valuable and interesting work. With regard to the use of the term *physiognomy*, the author explains it by stating that, instead of attempting to distinguish individuals by some isolated characters, he has endeavoured to present a faithful portrait of each species, considered in its different relations to allied species, to indicate the passage of one imaginary group to another, and thus to reduce the science to its most simple objects.

The characteristics of ophidians, according to M. Schlegel, consist in a very elongated body, furnished with a tail, and covered by a defensive armour of hard scales, which moves, supported by its ribs, by means of lateral undulations; the form is concentrated transversely into the smallest possible dimensions, but the parts are susceptible of great enlargement, so as to permit serpents to swallow the large animals intended by nature for their sustenance. For this purpose, the bony case of the head, instead of forming an immoveable mass, is composed of parts which, with the exception of those enclosing the brain, are susceptible of considerable motion, and usually in different directions. This is particularly the case with the lower jaw, the two branches of which are only united by elastic ligament. The total want of feet implies the absence of certain solid parts, as the sternum, pelvis, &c.; the ribs are free and enjoy a uniform mobility, contributing to the enlargement of the intestinal cavity, and to the changes of form which the trunk undergoes in the various movements of the body. The general integuments are divided into numerous compartments, forming so many articulations; the scales which form these articulations on the lower surface, are usually larger than the rest, and perform the office of feet: the ribs are attached to the lateral margin of the internal face of these plates. Between the scales there is a considerable amount of loose skin, to allow for the extraordinary enlargement of the internal parts. The whole structure, it will be seen, is especially adapted to the mode of locomotion and the manner of swallowing the prey.

Of the Teeth and Poison-Gland.—As ophidians swallow the animals on which they live whole, the teeth are not intended for mastication, but serve to detain the prey, to inflict wounds, and, frequently, to convey into the wounds which they make, a fluid secreted by glands lodged in the head. The glands are of two kinds; the one, salivary, is possessed by all serpents; the other, or poison-gland, is the property of venomous serpents only. The poison-gland is inclosed in a dense tendinous covering

and attached posteriorly to the articulation of the lower jaw, anteriorly it ends in a pretty wide duct, which runs along the maxillary bone, and terminates in the orifice seen at the base of the fang. The teeth which conduct the poison into the wound are called fangs; they are hollow, and are always placed at the anterior end of the maxillary bone; they are concealed in the gum which here forms a sort of sheath, and are recumbent when the snake is in a state of repose, but are elevated when he intends to bite. The rest of the teeth, and all those of non-venomous serpents, are solid, with the exception of the cavity for the pulp. Some of the non-venomous serpents it is true have channels in the teeth, situated at the posterior part of the maxillary bone, but these are only for the purpose of pouring into the wound the saliva secreted by the posterior salivary glands. The fangs being more exposed than the other teeth, we find that Nature has placed behind them several germs of new fangs, sometimes as many as six, and in every degree of development; it is not known whether the old fangs are shed spontaneously at certain periods.

Of the Poison.—This, in its fresh state, is a transparent limpid fluid, greenish-yellow, slightly glutinous; when dried it becomes viscid and adheres firmly to substances; when heated it evaporates without inflaming; it is diffusible in water, which it renders turbid and whitish. Its properties have considerable affinity to those of mucus; it is neither acid nor alkaline; it has no peculiar smell; applied to the tongue, it produces the same sensation as grease. According to Fontana, it may be taken internally without inconvenience; but this is denied by Dr. Hering, who, after taking some doses of the venom of the Crotalus mutus, felt the effects for eight days and more; these effects manifested themselves by pains in the larynx and other parts of the body, by a copious secretion of mucus from the nose and œsophagus, by a frequent diarrhœa with pains in the rectum, &c.; to these were joined other very remarkable effects, due, according to Dr. Hering, to the effects of the poison on the moral faculties.

It is probable, however, that the venom produces its effects only when mixed with the blood; these effects are the more serious in proportion as the quantity of the poison has been considerable, and has been introduced into a part abounding in blood-vessels. Hence the bite of a large species is more dangerous than that of the small, and a deep puncture, or one in a vein, is almost always mortal. Other circumstances must also be taken into consideration, such as the size of the animal bitten as compared to that of the serpent; thus, in Europe, man rarely perishes from the bite of the viper; it requires from three to four vipers to kill a horse or an ox, while a single bite is sufficient to kill in a short time one of the small mammifera; but, in tropical climates, a bite from a large venomous snake is generally fatal both in man and in other animals. Serpents also in biting several times, expend their venom, so that the last wounds are less dangerous than the first.

The poison of ophidians affects much less the white-blooded animals than the vertebrata. In most of the latter, the effects of the bite manifest themselves immediately. Man speedily feels acute pain in the part where two minute punctures may be seen from which a few drops of blood flow; the wounded part swells, and inflammation occurs with more or less rapi-

dity; the absorption of the poison is announced by general debility, walking becomes painful, respiration is impeded and laborious; the patient experiences burning thirst; nausea and vomiting quickly succeed, often followed by great distress and faintings, which, joined to the most violent pain, deprive the sufferer of his intellectual faculties. Livid spots surrounding the wound are the precursors of gangrene, which spreads to other parts of the body, and causes death after a longer or shorter interval. Even those who recover are sometimes affected with partial or complete palsy of the affected parts, or even experience a continual disturbance of their intellectual faculties.

Treatment of Snake-bites.—Many plants have been spoken of as *antidotes*, such as the Ophiorhiza, Mungos, Aristolochia Indica, Polygala Senega, &c., but no dependence can be placed on them. The first precaution to use, when one has been bitten by a venomous serpent, is to clean the bitten part, in order to prevent the poison adhering to the skin from entering the scarifications, which our author recommends should be made immediately; the part may either be cut out, or destroyed by caustic, and the wound sucked, or what is better, the cupping-glass may be employed; if this is not at hand, a ligature may be applied round the limb, as near as possible to the wound, and between this and the heart. Internally, powerful stimulants, such as the *eau de luce*, may be administered. M. Lenz recommends chlorine, both externally and internally; arsenic also is much recommended, especially by Mr. Ireland, who employed it with great success in the West Indies. Frictions with olive oil have proved efficacious in some instances.

Form of Serpents.—This depends in great measure on their mode of life, the nature of the places, or the element they inhabit, and also on the kind of locomotion which is natural to them. Those which frequent trees are especially distinguished by their slender forms, while those which prefer plains, or retire into burrows, are recognizable by their compact body, terminated by a very short tail: intermediate between these two tribes as to development of parts, are a great many serpents which usually remain on the ground, but are able to climb and swim also with more or less facility; others that delight more in humid places, or never quit the water, present the most varied forms, more or less suited to this species of locomotion. The shape and disposition of the parts of the head give to each species a peculiar physiognomy which may serve for the recognition of the different races. The circumstances which chiefly contribute to render the physiognomy of serpents characteristic, are a large broad head, high, angular, cordiform, and covered with small scales with unequal surfaces, a wide mouth curved at its margins, thick lips, large fossettes on the sides of a muzzle truncated or turned up at the end, small eyes with an elongated pupil, and overhung by salient superciliary plates—characters which are generally united in the species with clumsy forms, such as we see in the serpents properly named venomous, and in some others. These pronounced features, however, do not always constitute the distinctive characters of dangerous ophidians.

Enemies of Serpents.—The curse pronounced against the serpent has rendered these reptiles universally detested. Not only does man kill them, indifferent whether they be venomous or inoffensive, but certain mammifera are produced in all the countries of the globe, that pursue serpents with persevering keenness. With us, their chief enemies are the badger, the hedgehog, the weasel, the martin, and the polecat; in tropical climates they have to contend against the civet, the ichneumon, and other carnivora. Several birds wage on them a continual war, such especially is the serpent-eater of the Cape, mounted on its long stilt-like legs, as it would seem on purpose to render the bites of snakes ineffectual; in South America the laughing falcon and other birds of prey pursue them eagerly; the large storks of India destroy an immense number of serpents; in Europe, besides the storks, ravens, kites, and several buzzards prey upon them. In tropical seas, their exist sharks that devour with avidity the sea-serpents; and lastly, many ophidians make war on each other, not even sparing their own species.

Propagation.—In our climates, where serpents only produce young once a year, copulation takes place generally in the first fair days of April or May. It is, at least in our indigenous species, three or four months before the eggs are ready to be laid; during this interval a species of incubation is going on in the belly of the mother; for, on opening the eggs just after they are laid, we almost always find a fœtus more or less developed, sometimes even perfectly formed. In this latter case, the young are shut up in a third membrane, which they tear at the moment of birth to commence their independent existence. In other cases, the young being only imperfectly formed when the eggs are laid, require sometimes the space of a month more before the hatching is accomplished. On this depends the distinction which has been made between viviparous and oviparous serpents; a distinction, it will be seen, not altogether correct. The number of eggs deposited at a time varies considerably in the different species; in some amounting to not more than ten, whilst it is said that our ringed snake lays as many as forty.

Development.—The young, on leaving the egg, differ from their parents, besides their size, by a system of colouring more vivid and more contrasted, by the bluntness and roundness of the head, by the largeness of the eyes, and by the less perfect state of the epidermis and its appendages. Their teeth, however, resemble those of adults. It was long believed that the tail of the young was shorter, in proportion to the trunk, than in the adult, and that this member presented fewer subcaudal plates. This opinion is probably not correct, because the number of plates corresponds to the number of vertebræ, and it is very improbable that fresh vertebræ should be produced.

Shortly after birth, the young ophidians undergo their first moult. This process is repeated in our climate five times in the year, namely, every month from the end of April to the beginning of September; during hybernation they do not cast their skin. "In order to reject the old epidermis which begins to detach itself at the head and especially along the borders of the lips, the serpent passes itself through mosses, grasses,

or heaths, and contrives, by means of slow and continued movements or frictions, to disengage gradually the exterior layer of the skin, which is already replaced below by a new epidermis. The spoils thus removed are found inverted from one end to the other, forming a sac with a reticulated surface more or less diaphanous, more wide than the body of the snake, because of the the dilatations of the membranous intervals, and presenting, with the exception of those of the mouth and the nostrils, no other orifice than the anus; for it is well known that the hemispherical membrane that protects exteriorly the globe of the eye, is part of the integuments, and comes off along with the rejected skin." Moulting, it would appear, is produced in the same manner in all serpents.

We are altogether ignorant of the age attained by snakes, though it is probable that they live long, as do all other reptiles; we are equally ignorant whether they have a stated period of growth, or what may be its duration. In this climate it would appear that they arrive at puberty in the fourth year.

Habitudes.—Ophidians are to be found in every country where the conditions necessary to the existence of reptiles in general are to be found. Many snakes live together, and on friendly terms, such as most of the aquatic, and especially the sea-serpents, that show themselves in immense shoals on the surface of the ocean. The venomous land-snakes, on the contrary, generally lead a solitary life. Most ophidians choose their food indiscriminately from among the three first classes of vertebrate animals. Like other reptiles, serpents can do without food for a long time. Dr. Traill knew of two rattle-snakes, living eighteen months without swallowing any food. We are ignorant whether snakes drink; no fluid has been found in the stomach on dissection. Incapable of supporting cold, which also deprives them of food, they retire on the approach of Winter into retreats secured against the inclemencies of the weather; in our climate and in North America, this occurs towards the month of October, and they re-appear about the end of March or April. In warm climates, however, they pass the whole year in a state of continual activity.

Fables and Prejudices—The serpent performed a great part amongst the ancients, and appears as the representative of the *evil principle* in the mythology of most nations; Arimanes, assuming the form of a serpent, seeks in vain to overcome his antagonist Orosmandes, who represents the good principle in the idealism of the ancient Persians. Passing by, however, all the allegorical representations of the serpent, we will notice only a few of the fables of more modern times. Many travellers speak of serpents of a monstrous *size*, which they say they have encountered, and which they speak of as reaching to forty feet and upwards; to these they apply the name of Boa-constrictor, though the true Boa-constrictors are considerably inferior in size to other species of the Boa and the Python. We now know that the most gigantic do not surpass twenty to twenty-five feet in total length, and that their thickness is not above seven inches in diameter. In the first rank of all known serpents, in point of dimensions, stands the Boa Murina, a native of the equatorial regions of America. The Python Bivittatus, found in inter-tropical Africa and Asia, attains nearly the same

size. In our climate, serpents are rarely more than five feet in length, but in middle Europe there is one species of Coluber, which arrives at the length of eight feet.

We may well be astonished then at the accounts of Boas from forty to fifty feet long, that attack men, oxen, and tigers, and swallow them whole, after having covered them with a frothy saliva. Such tales are about on a par with that of the three sons of a colonist, successively dying at long intervals, of a wound caused by the fang of a rattle-snake remaining in the boot of their father, who had first died of the bite. The story of the Great Sea *Sarpent* is well known. Many other absurd accounts are noticed, most of them boasting an American parentage.

Schlegel's Arrangement of Serpents.—M. Schlegel divides serpents into innocuous and venomous. The INNOCUOUS consist of—

1. Burrowing Serpents.—Gen. I. *Tortrix.*
2. Vermiform Serpents.—Gen. I. *Calamaria.*
3. Terrestrial Serpents.—Gen. I. *Coronella.* II. *Xenodon.* III. *Heterodon.* IV. *Lycodon.* V. *Coluber.* VI. *Herpetodryas.* VII. *Psammophis.*
4. Tree Snakes.—Gen. I. *Dendrophis.* II. *Dryiophis*, subdivided into A. *Dryiophis of the Ancient World*; B. *Dryiophis of the New World.* III. *Dipsas.*
5. Fresh Water Serpents.—Gen. I. *Tropidonotus.* II. *Homalopsis.*
6. Boaform Serpents.—Gen. I. *Boa.* II. *Python.* III. *Acrochordus.*

VENOMOUS SERPENTS.—These are distinguished by the existence of the *fang.*

1. Colubriform Venomous Serpents. (Inhabit the hot countries of both worlds; they are not found in Europe.)—Gen. I. *Elaps.* II. *Bungarus.* III. *Naja.*

2. Sea Serpents. (Found only in the inter-tropical latitudes of the Indian Seas, or of the great Pacific Ocean.)—Gen. I. *Hydrophis.*

3. Venomous Serpents, properly so called. (These are discovered in the five great divisions of the world.)—Gen. I. *Trigonocephalus.* (Not found in Europe nor in Africa.) II. *Crotalus.* (Peculiar to the New World; the tail is armed at the extremity either with a sounding instrument called a *rattle*, or with a hard sharp scale.) III. *Vipera.* (The only venomous snakes found in Europe.)

For the description of these varieties, as well as for an essay on the geographical distribution of ophidians illustrated by a chart, we must refer the reader to the work itself.

PHYSICS AND PHILOSOPHY.

I. Elements of Natural Philosophy. Being an Experimental Introduction to the Study of the Physical Sciences. By *Golding Bird*, M. D. Second Edition. London, 1844.

II. The Sources of Physical Science. Being an Introduction to the Study of Physiology through Physics; comprising the Connexion of the several Departments of Physical Science, their Dependence on the same Laws, and the Relation of the Material to the Immaterial. By *Alfred Smee*, F. R. S.

III. Caloric: its Mechanical, Chemical, and Vital Agencies in the Phenomena of Nature. By *Samuel L. Metcalf*, M.D. Two Vol., 8vo. pp. 1100. Pickering, 1843.

The author of the first of the three works above-mentioned states, that "the best apology, that can be offered for presenting this volume to public notice, will be found in the reason which suggested its compilation, viz. the absence of any system of physics, sufficiently extended to include all those subjects with which men of education, especially members of a liberal profession like that of medicine, ought to be acquainted." The manual is chiefly intended as a text-book for the student whilst attending lectures on physics. As an additional reason for writing such a work may be mentioned the circumstance, that a knowledge of the principles of physics has been rendered imperative at the different medical boards, and now constitutes an important part of the examination, which the candidate for a diploma is called upon to undergo. He acknowledges himself considerably indebted to several French and German works for many suggestions and illustrations.

To insist on the vast importance and imperious necessity to the medical practitioner of an acquaintance with physical science, is scarcely called for in the present enlightened age. It is now universally admitted that the science of physiology rests on that of physics as its basis and firmest foundation. The skeleton is a machine in the strict sense of the term, being furnished with the various mechanical powers, as levers, hinges, &c., fitly and appropriately arranged, some to sustain pressure, others to transmit active force, some being capable of moving in one direction only, others of moving in all directions. In fact, it is in the animal body that the truest perfection and the greatest variety of mechanism are to be found. In case of dislocation or fracture of any part of the body, the question is to determine the best method of adjustment; where and how a force may be applied with the greatest mechanical advantage, and with the least risk of injury. In such a case the surgeon cannot avoid displaying, in a striking manner, either his skill or his ignorance. When under a skilful hand, with what ease does the displaced arm or thigh-bone return to its place; and, on the other hand, to what horrible torture is the victim subjected, when ignorance dares the attempt. If we pass from the osseous to the vascular system, we see that the action of this system involves hydraulic

principles, whilst the organs of respiration are known to act on pneumatic principles; the *aural* and *vocal* organs are constructed on the principles of acoustics, nor can the principles on which the eye is constructed be understood without a knowledge of the science of optics. The duty of the physiologist with respect to physical science is clear enough. He should first make himself sufficiently acquainted with the physical laws, which regulate the changes incident to matter in the various forms which it may assume; he must then acquire an exact knowledge of the various forces of attraction, aggregation, repulsion, &c.; and then he will be careful to observe the phenomena exhibited in the body, and to compare them with the established laws of physics; for though organized beings have actions peculiar to themselves, and are governed by their own laws, they are still subject to the more general laws of matter. There is, in fact, scarcely a part of the animal body or an action which it performs, or an accident that can befal it, or a piece of professional assistance which can be given to it, that does not furnish illustration of some truth of natural philosophy.* Between the physical sciences and the arts of life there subsists a constant mutual interchange of good offices, and no considerable progress can be made in the one without of necessity giving rise to corresponding steps in the other. Among many other instances of this may be mentioned one in which a most familiar effect may become a safeguard of human life, and a remedy for a most serious and distressing evil. In needle-manufactories the pointers of the needles are exposed to excessively minute particles of steel, which fly from the grind-stones, and mix, though imperceptibly to the eye, as the finest dust in the air, and are inhaled with their breath; this being continued, produces a degree of pulmonary irritation, which is sure to terminate in consumption; so that persons employed in this kind of work used scarcely ever to attain the age of 40. Various efforts were made by means of gauzes, &c. to purify the air before its entrance into the lungs; the dust, however, was too fine and penetrating to be intercepted by such coarse expedients, till some ingenious person bethought him of the wonderful power of the magnet. Masks of magnetized steel are now constructed and adapted to the faces of the workmen. By these the air is not merely *strained* but *searched* in its passage through them, and each obnoxious atom is arrested and removed.†

Whilst on the subject of the importance and value of a knowledge of physics to the physiologist and pathologist, it may not be amiss to illustrate the advantage of an acquaintance with physiology to the mechanical philosopher. It is the illustrious Biot who has suggested that an attentive consideration of the animal organization, with respect to the physical laws by which it is regulated, would be found the most certain and effectual means of improving mechanical science. For instance, had the structure of the eye been attentively studied, it could scarcely have failed to lead to the invention of achromatic lenses, the eye itself being a most complete achromatic instrument, and being indebted for that quality to

* Arnott's Elements of Physics.

† Herschel's Discourse on the Study of Physical Science.

the same principle, on which the perfection of the telescope depends. In the same way, the structure of this same organ might have suggested the means of removing, or at least diminishing, the errors arising from spherical aberration.

Having now endeavoured to point out some of the more immediate and matter-of-fact advantages, which will accrue to the medical practitioner from the study of physical sciences, we cannot relinquish this part of our task without directing attention to the more remote, though not less valuable, advantages likely to result from this study. To say nothing of the liberalizing influence, which the study of the natural sciences cannot fail to exercise on the mind, we should not lose sight of the important fact that "the habits of accurate and persevering observation, of investigation, of abstraction, and of correct reasoning, are more or less produced and cultivated by the study of the philosophy of nature."* Nothing, indeed, is better calculated for cultivating that philosophic spirit which is of so much importance to the medical practitioner, than habituating the mind to the patient investigation of the various phenomena of nature, and to the close observation of those laws, by which the occurrence of such phenomena is regulated. Medicine itself being but one of the great departments of natural science, it is obvious that a mind well drilled in the general and abstract principles of the latter is much better prepared to encounter the study of the former, and much more likely to attain success in it, than when such previous and preparatory study has been neglected. We find that our eagerness to impress on the minds of medical men the urgent necessity and great importance of an acquaintance with the principles of physical science has led us somewhat away from our more immediate object, which is, to present to our readers a very succinct analysis of the contents of the volume before us, and our own opinions as to its merits, and its fitness to supply the desideratum so long felt in the education of the medical practitioner by serving as a book of elementary instruction on physics.

In the Introductory Discourse we are told that the branch of Natural Philosophy which is to constitute the subject of this volume, is to consist in the investigation of the constitution of masses of matter, the laws governing them, and the mutual action of different atoms of the *same* kind, with an examination of the relation they bear to space, and to the various members of the universe. By this arrangement, the Science of Geology and of Physical Geography on the one hand, and that of Chemistry on the other, are excluded. Newton's celebrated Rules of Philosophizing are strongly recommended to the attentive consideration of the student. And here we own we were somewhat disappointed at seeing these rules called *Reguli Philosophandi*, instead of *Regulæ*—and that this is not a typographical error, or an oversight on the part of the author, is evident from its repeated occurrence. We regret to see an error of this nature disfigure a work of such pretensions—it is really a pity. The long-debated question concerning the infinite divisibility of matter is duly considered, and the idea of such infinite divisibility is shown to be absurd.

* See Art. Intellectual Education, in Rees's Cyclopædia.

By the way, it has more than once occurred to us that, if what is really positive in the idea of infinite divisibility be carefully considered, the thing will not appear at all so strange; when it is said that matter is infinitely divisible, the meaning is that the number of parts into which any given portion of matter may be divided is greater than any assignable number.

We shall now present our readers with a mere enumeration of the contents. The first nine chapters include the *Physics of Ponderable Matter.* Chap. I. treats of the General Properties of Atoms and Masses of Matter. II. Attractive Forces exerted between Masses. III. General Dynamics. IV. Gravitation. V. Theoretical Action of Simple Machines. VI. Hydrostatics. VII. Aerostatics or Pneumostatics. VIII. Hydro-dynamics, and Pneumo-dynamics. IX. Acoustics.—The second Part contains the *Physics of Imponderable Matter*. This part consists of Chapters, headed thus: X. Magnetism. XI. Primary Phenomena of Ordinary Electricity. XII. and XIII. Consequences of Electrical Induction. XIV. Phenomena of Atmospheric Electricity. XV. Voltaic Electricity, &c. &c.

Having now mentioned the contents of this certainly useful work, we shall take the liberty of pointing out some of what we call defects in it. As we conceive the work to be destined chiefly, though by no means exclusively, for medical readers, we regret that we do not find anything like an application of the principles of physics to the various movements and processes going on in the animal economy. Such an application would serve to illustrate those principles far better than reference to mere inanimate matter. For the purposes of such illustration a great many excellent examples may be seen in the Animal Mechanics by Sir Charles Bell.*

Another fault we have to find in this work is, that formulæ are repeatedly given throughout the work, without the student being shown how these formulæ have been obtained. Now when he has stored up in his memory a number of such formulæ, without being instructed as to the mathematical processes by which they were obtained, he has not acquired anything deserving of the name of knowledge; he believes in the truth of the formulæ, because he has confidence in the veracity of the author. We think that either these mathematical formulæ should have been omitted altogether, as they are in Dr. Arnott's Physics, or, being given, the mode of obtaining them should have been given likewise.

Sunt delicta quibus nos ignovisse velimus.

The faults we have pointed out, however, are not amongst the number. We dislike the affectation of science. We trust Dr. G. Bird will not misunderstand us—his book is good and without much trouble might have been made better. Every student should have gone through the various mathematical processes by which the various scientific formulæ were arrived at; in that case only will he rest satisfied of their truth; and though he may not be always able to detail, when called on, the several links of the chain, yet, having once been convinced of the truth of the Algebraic result, he knows that it must be always true—such is the great

* See Library of Useful Knowledge.

advantage of abstract science. He will, in fact, have an habitual, though he may not have an actual, knowledge of the thing. Having, for instance, proved at any time that the focal length of a double convex, or a double concave lens, is equal to twice the product of the radii, of the spherical surfaces divided by the sum of these radii, or in technical language, that it is equal to the harmonic mean between these radii. he will *know* that the same thing will be always true, though he may not be able to go through the process of proof.

The author of the second work mentioned at the head of this notice, viz., The Sources of Physical Science, is already favourably known by his very ingenious and clever work on Metallurgy. Mr. Smee states, in his preface, that it has long been a favourite subject with him to endeavour to investigate the physical structure of man, and to unravel the mysterious means by which all physical forces, when acting on the human frame, are converted into nervous impressions. In conducting such an inquiry, he felt it necessary to examine the sources from which the several departments of research, constituting physical science, have their origin, in order that we might be in a condition to understand the material structure of the body. For this purpose, he determined on drawing up a slight sketch of physical science, which was to form an introductory chapter to his inquiries; but, on finding that such a sketch, notwithstanding his utmost endeavours to condense it, ran out into a good-sized volume, he could not think of allowing it to form an Introduction to his Physiological Investigations; and thereupon he determined on bringing it out as a separate treatise in the form we now have it. His chief aim in preparing this work, has been to examine the mutual relation, not only of the various conditions of matter, but also of the various physical forces, the independent existence of which has been at various times assumed by mankind. The result of his inquiries has been such as to oblige him to admit but three fundamentals—matter, number, attraction,—from which, he says, under various circumstances, all physical phenomena arise. Our original intention was to amalgamate our notice of Mr. Smee's work with that of Dr. G. Bird's: but we had not been long perusing it when we saw that the two works were *toto cælo* different.

Mr. Smee's book is more metaphysical than physical; it is, in fact, a work completely *sui generis;* entirely unlike any other work with which we are acquainted. Anything like an analysis of a work so very abstracted, so very much removed from our ordinary modes of thinking and of reasoning, would be entirely incompatible with the well-known practical character of the Medico-Chirurgical Review, which, generally speaking, prefers to deal in things which are "sensible to feeling as to sight." Nor do we say this in disparagement of the merits of Mr. Smee's production. The book could come from no one but a man possessed of a great grasp of intellect, and great originality of mind. The first chapter of this work contains some excellent remarks on the advantages of studying abstract physics. "The right use of abstractions," says our author, "is highly convenient and important, tending to prevent parenthesis and confusion; and in fact we may say, that the capacity to employ abstract ideas in great measures gives to man his superiority over all other created things." Mr.

Locke, if we remember aright, makes the faculty of abstraction the essential difference of man. For the many recommendations of abstract science as a preparation for the study of natural philosophy, and accordingly of medicine, we would beg to refer the reader to Sir John Herschel's Discourse on the Study of Natural Philosophy, Chap. II. We must not, however, conclude our notice of Mr. Smee's book, without earnestly recommending it to the attentive perusal of those persons who may feel disposed to wing their flight into the æthereal regions of abstract essences, and to leave "dull earth behind them." Were we disposed to indulge our own feelings, we would willingly give a much more extended notice of this book; such an indulgence, however, may not be agreeable to the prevailing taste of medical men. In the appearance of such works as those of Dr. Bird and Mr. Smee we see the dawn of better days for medical science, and we feel convinced that the time will come, and is not far distant, when the preliminary education of medical men will be so improved and so extended, that the occurrence of such characters as the Algebraic x and y in physics, or, in the application of physics to physiology, the mathematical mode of expressing the value of the moving power, as the lever, in terms of the weight and of the relative distances of the power and weight from the fulcrum, will no longer frighten the timid reader, and elicit from the more presuming, because still more ignorant one, the self-flattering remark, *si non vis intelligi, debes negligi.* We apprehend that Mr. Smee's book, as well as Dr. Bird's, stand a very fair chance of having this compliment paid them at present, and for a few years to come, not perhaps in the precise terms in which we have stated it; as ignorance of the language in which it is locked up from the class of readers now under consideration may save them so far.

The third work upon our list is one of considerable research. The author, in exploring the wide realm of Natural Science, has spared no labour, and has left the works of no writer, ancient or modern, unconsulted, whose lucubrations could possibly illustrate, however remotely, his theme. The reveries of Plato, the observations of Aristotle, the dicta of Hippocrates, the discoveries of Newton, the science of Bacon, the doctrines of Hunter, the theories of Davy and Liebig, of Müller, and Cullen, have one and all been laid under contribution, and subjected to a searching criticism, which at least proves him to be no blind follower of authority. By the extended application of a principle in Nature, hitherto misunderstood or overlooked, he believes himself to be in a condition to enforce some of the doctrines, correct the errors, explain or expose the inconsistencies, and supply the deficiencies of these great observers. A bold generalization of this vast assemblage of facts and observations, carried out with much ingenuity of argument and felicity of illustration, leads him to deductions, which, if sound, would prove, that a much more intimate knowledge of even the most recondite operations of Nature is already possessed, than her closest observers or most rigid interrogators have ever ventured to anticipate the attainment of; while the path and scope of scientific investigation for the future become so simplified, as to consist rather in a pleasant culling of flowers and fruits in localities already indicated to us, than in the traversing with slow, hesitating, laborious step the

steep hill of science. The loss of health which the sedulousness of his pursuits have entailed upon the author, would be cheaply purchased by the immortality which would infallibly attend a discovery so great; and we regret being obliged to record our conviction that no such discovery has in reality been made. Perhaps, as neither our space or time will admit of our going into the detail necessary for the purpose of confuting what we believe to be erroneous in the doctrines advanced, it is scarcely just on our parts to make this assertion. Still, having read the work with great interest, and much attention, we feel called upon to say we think its author has not made out his case. The enthusiasm which the pursuit of a favorite theory so often begets, has, amidst very much that is undoubtedly true, too often led him into the partial application of facts, an undue reliance upon the loose expressions and inexact observations of ancient authors, a misapprehension of effects for causes, an admission of properties contradictory of each other, and a far too ready assumption of his own assertions and fanciful hypotheses as sufficient make-weights against established opinions, and as stepping-stones for the most sweeping conclusions. The application of the doctrines, too, in medical practice, would lead to a most dangerously inactive and inefficient treatment of many most important diseases.

We proceed to select from the various chapters such parts as we think will best convey to the reader a general idea of the author's views.

Dr. Metcalfe regards CALORIC as the grand, if not the sole, primary agent in the various mechanical, chemical, and vital phenomena of nature. He considers it as a material agent, and not resulting from the mere vibration or motion among the particles of ponderable matter, as represented by most modern philosophers. It is well known that all bodies are surrounded by an elastic medium, which prevents their particles from coming into actual contact with each other. This medium is caloric, as is seen by the augmentation or diminution of volume which occurs in solids, fluids, and gases, accordingly as it is added or substracted from them. All bodies being thus full of caloric, it constitutes by far the greater proportion of the bulk of our globe, although its heating powers may, during its combination with the particles of ponderable matter, be concealed.

The following synoptical view may give some idea of the extent over which the author's investigations range.

"Having thus proved that caloric is a material agent, I now proceed to show that it is a self-active principle, capable of moving itself, and of generating motion in all other bodies. The cardinal facts which connect its agency with the general theory of physics, may be reduced to the following propositions:—

"1. That the activity or moving power of all bodies, is directly in proportion to the amount of caloric around their particles. 2. That all molecular motions, whether centripetal or centrifugal, may be resolved into the law by which caloric repels its own particles, and attracts those of ponderable matter, with forces that are inversely as the squares of the distance. 3. That the quantity of motion in the world, whether mechanical, chemical, or vital, is in proportion to the mean temperature of different latitudes, *cæteris paribus*, and diminishes from the Equator to the Poles. 4. That the centrifugal force by which planets are impelled through their orbits, is directly in proportion to the heating power of the sun. 5. That the aggregate vital energy of animals, and the development of their or-

ganization, are exactly in proportion to the amount of caloric obtained by respiration, and combined with their tissues. 6. That every variety of electricity is convertible into caloric, and the latter again into electricity; consequently they are modifications of one and the same principle. 7. That the directive power of the compass-needle diminishes from the isothermal equator to the points of lowest mean temperature, which are the magnetic poles; and that all its variations correspond with the variations of terrestrial temperature. 8. That caloric is the active principle in light, whether radiated from the sun, or generated by ordinary combustion," &c. 14.

The imparting *Motion* by caloric is illustrated in its gradually increased production among the quiescent particles of ice, as this becomes converted by caloric, first into water, then into steam. And could we suppose caloric entirely absent, then must we also suppose the system of nature totally inert. Attraction and repulsion, supposed by Newton to be ultimate principles of action, are in truth but modified effects of this same agent or primary cause. That caloric should produce these opposite effects is thus explained.

"Why then does caloric repel its own particles, and attract those of ponderable matter, with forces that vary inversely as the squares of the distance? To this primary and leading question I answer, that caloric repels its own particles because they are of the same nature, and attracts those of ponderable matter because they are of a totally different nature; that in every variety of state caloric is an essentially active principle, and incomparably more refined than any description of ponderable matter, even when expanded into the subtle form of light; for it permeates the most dense and opaque bodies, which are totally impervious to light. * * * * * * * Thus it is evident that the repulsive power of caloric, on which the volume and elastic forces of gases depend, is counteracted and diminished by an affinity of ponderable atoms for caloric; and that this attraction augments in a certain ratio, as the size of the particles increases, until it wholly predominates over the repulsive force. The atoms of hydrogen, nitrogen, oxygen, and light carburetted hydrogen, retain a large amount of caloric around them in proportion to their size; the consequence of which is, that the thermo-repulsive force greatly predominates. But when they are made to combine with each other chemically, or with carbon, phosphorus, sulphur, chlorine, &c. making gases of greater specific gravity and atomic weight, their elastic force is diminished, even in cases where little or no caloric is given out, as in the combinations of nitrogen and hydrogen," &c. &c. 109-116.

Carrying the above doctrine still farther, he arrives at the explanation of *Cohesion*.

"It still remains to prove that the cohesion of metals, rocks, and all other solid bodies, is determined by the various degrees of force with which they attract caloric; and that it is resolvable into the same cause which produces the contraction and chemical combinations of gases, or reduces them to the form of liquids. If it can be established as a general law, that the particles of all bodies are held together, with forces which vary according to the different degrees of their affinity for caloric, and that this affinity varies with every change in the relative proportions of caloric and ponderable matter, the problem of attractions will be greatly simplified; for it will be evident that cohesion is not the result of pressure, as conjectured by Newton, but that contraction and expansion, density and lightness, solidity and fluidity, are modified effects of one and the same agent; in fine, that all the operations of Nature depend on the relations of æthereal and ponderable matter.

"A thorough comprehension of the law by which caloric is chained down in a state of intimate combination with the ponderable matter of the earth, and thus prevented from expanding throughout the universe, would banish from the science of physics all those vague and absurd speculations which have been founded on hypothetical data, such as innate forces, immaterial properties, occult qualities, inertia, &c." 170.

Gravitation, which is usually spoken of as a universal principle of action in Nature, offers no explanation of many of her phenomena. It is, in fact, but a subordinate effect of the operation of the principle which pervades all matter. It must not therefore be considered as a cause from which the phenomena of matter proceed, but "only an expression of the general fact, that bodies tend towards each other with forces which vary inversely as the distance."

The agency of caloric in effecting *Solution* and *Chemical Attraction* is thus spoken of.

"That caloric is the universal solvent of nature is evident from the fact, that all solid bodies are convertible into liquids and gases or vapours, by a sufficiently high temperature, and reconverted into solids by its abstraction. It is equally clear that if caloric be the cause of all liquidity, vaporization and gasefaction, it must be the menstruum by which liquids and elastic fluids are enabled to dissolve other bodies.

"The most remarkable facts connected with solution may be reduced to the following propositions. 1. That all fluids are *chemical combinations* of caloric with ponderable matter. Water is composed of oxygen, hydrogen, and caloric; sulphuric acid, of oxygen, sulphur, and caloric; and so of other liquids, the elements of which are chemically combined with it in definite proportions. 2. That no solution of a solid in a fluid ever takes place, without a transition of caloric from the solvent to the solvend. 3. That the solvent power of water and other menstruums is exalted by caloric, and diminished by its abstraction. 4. That the solutions of animal, vegetable, and mineral substances in water and other fluids, are strictly chemical combinations. It therefore follows, according to the most rigid principles of logic, that if caloric be the cause of solution, it must also be the physical cause of chemical attraction, by which salts, rocks and metals are held in a state of intimate combination with fluid menstruums." 229.

Elective Affinity is represented as arising from the same cause.

"All solutions and precipitations are owing to the transition of caloric from one body to another. What is termed elective affinity is owing to the stronger attraction of one body for caloric than another. By the solvent power of caloric in nitric acid, it is enabled to combine chemically with silver, the particles of which are diffused equally throughout the menstruum, making a transparent solution of nitrate of silver. But if a portion of mercury be poured into the solution, the silver is precipitated as the mercury dissolves. It therefore follows, that if the caloric of nitric acid enabled it to dissolve and combine with the silver, it must have a still stronger attraction for the particles of mercury, or it would not desert the atoms of silver for them: in short, that the silver is separated from its combination with the acid by an abstraction of caloric, for the same reason that salts dissolved in water are precipitated by a reduction of temperature." 251.

Electricity.—The following are the author's conclusions respecting the origin of the various species of electricity, and their identity with caloric.

1. *That the latent caloric of aqueous vapour is the true and only basis of lightning.*

Lightning is found to prevail in those regions where evaporation and rains are most copious; while, in other parts, where there is no rain (as at Lima in Peru,) and in dry seasons, it does not exist—so that where there is no condensation of vapour, there is no lightning. A certain range of solar temperature is indispensable for its existence, the two being invariably connected together as cause and effect. In a uniformity of temperature, such as is secured in the tropical portions of the sea far from land, and in other parts of the world where the winds blow long in one direction, the quantity of precipitation and lightning are both greatly diminished; whereas, changes of temperature are indispensable to the condensation of atmospheric vapour, and to the evolution of its caloric in the concentrated form of electricity.

As lightning is accumulated in transparent aqueous vapour, and is immediately discharged when this is condensed, it is an optical delusion which leads to the supposition that it becomes accumulated around the surface of clouds, which, being an atmosphere of moisture, oppose its accumulation. It is its passage through these, after its discharge from the condensation of the transparent aqueous vapour in which it had been contained, that has given rise to the error.

2. *That the latent caloric of liquids is the basis of voltaic electricity in all its various forms.*

In tracing also the analogies between voltaic action and subterranean chemical forces, the above principle still holds good. The examination of the geographical situations of volcanoes proves that both their number and their power of action, are proportionate to the heating power of the sun in such localities. A farther geological examination of the surface of the earth shows "that the aggregate force by which mountains, islands, and continents, have been raised, from beneath the ocean, like all chemical transformations on the surface of our planet, is in proportion to the heating power of the sun, *cæteris paribus*."

3. *That both are governed by the same universal law of attraction for ponderable matter, and repulsion of their own particles.*

4. That the essential properties of *positive* and *negative* electricity are the same under all circumstances.

5. That when metals are made red-hot by electricity, whether it be disengaged from a galvanic battery, from a common machine, or from a magnet, it immediately loses its peculiar power of darting through conductors and producing a shock, being *transformed into caloric*, when it excites the sensation of heat, and converts solids into liquids, vapours, and gases, which present the same properties as if generated by the action of ordinary caloric.

The second volume of the work is devoted to the consideration of the *Vital Agencies of Caloric*; and contains much matter highly interesting to the medical reader, who extends his views beyond the mere routine of the profession. After reviewing the various theories of life which have been broached, and exhibiting the more complex chemical composition of organized beings as compared with inanimate matter; the author proceeds more immediately to his proper subject with the following question:—

"Now the great question that lies at the very foundation of organic chemistry is, whether the power of forming ternary and quaternary compounds, with the aptitude for renewing their composition by assimilation and elimination, be owing to the same cause which governs the affinities of dead matter, or to some peculiar principle of a totally distinct nature, as maintained by Berzelius, Tiedmann, Müller, and nearly all the most distinguished physiologists of the present day? Nothing but an earnest appeal to Nature, and a careful examination of facts, can resolve this difficult problem." 526.

He answers it in the affirmative, and states :—

"That the power of living bodies to renew their composition by assimilation, and to reproduce their species by generation, is governed by the emphatic agency of caloric, is evident from the fact, that the power of Nature to multiply organic forms, is directly in proportion to the temperature of the earth, from the equator to the polar circles. * * * Whatever the cause may be by which organized bodies are enabled to renew their composition, must determine the actions that modify their structure and functions; for the elements of which they are formed are the same in all parts of the world, with this prominent exception, that within the tropics they are continually receiving from the sun a larger portion of that æthereal principle, (whatever men may choose to call it,) which preserves all Nature in a state of activity. The elements of the air, water, and crust of the earth, are the same in South America as at Melville Island; which is also true of all the plants and animals that inhabit the earth. The number of species, the magnitude of their forms, the complexity of organization, must therefore be regulated by the energy of the principle that causes their developement, which diminishes from the hottest to the coldest parts of the globe; because in the former, the affinities of life are continually in action, but suspended for six or nine months every year, in the middle and higher latitudes."

Animal Heat.—As may be imagined, the author pursues this part of his subject with congenial earnestness. He advocates the chemical theory of its production, and thus speaks of the *modus operandi.*

"That a small proportion of oxygen is absorbed by the blood, and contributes to its formation, is highly probable; but I have proved that by far the greater part of it unites immediately with carbon and hydrogen in the lungs. If then it be true, that caloric is always disengaged during the formation of carbonic acid and water, and that the lungs are the source of animal temperature, the latter cannot be 'owing to' the fixation or condensation of oxygen in the blood, and the combinations into which it enters in the circulation,' as maintained by Dr. Davy; nor to the 'combination of oxygen with carbon in the systemic capillaries,' as supposed by many modern physiologists. * * * * The truth is, that if carbonic acid were formed in the systemic capillaries, (as maintained by Edwards, Müller, Prout, and others,) they ought to have a higher temperature than the lungs, for the obvious reason, that whenever oxygen unites with carbon, caloric is evolved, whether during ordinary combustion, fermentation, or respiration. But that the temperature of arterial blood is reduced, instead of being augmented, in the systemic capillaries, is evident from the fact, that on returning to the right side of the heart, it is found to have lost from 1° to 3° of caloric, together with its bright florid hue, and power of maintaining the actions of life, just as the steam of an engine loses its elastic force and the power of moving the piston, after undergoing a reduction of temperature.

* * * * *

"From all the foregoing facts we are authorized to conclude—1. That during the passage of dark venous blood through the lungs, it gives off variable proportions of carbon and hydrogen, that unite chemically with atmospheric oxygen

to form carbonic acid and water, as in ordinary combustion, by which it acquires additional caloric, with a bright, florid, hue; and 2. That during its circulation through the systemic capillaries, the caloric obtained from the atmosphere is transferred to the solids, by which their temperature and vitality are maintained, when the blood returns to the right side of the heart of a dark modena hue, having lost its power of stimulating the organs, until it acquires an additional quantity of caloric from the lungs." 555.

Dr. Metcalf animadverts at some length upon the errors into which he conceives Liebig has fallen upon this subject.

"But although Liebig has more clearly explained the chemical source of animal heat than any of his predecessors, and triumphantly refuted many absurd hypotheses; candour obliges me to say, that he has overlooked some of the most important facts connected with the theory of respiration. For example, he maintains in various parts of his late work, that atmospheric oxygen is conveyed from the lungs to every part of the body, where it unites with carbon and hydrogen to form carbonic acid and water: that 'globules of the blood, which can be shown to take no share in the nutritive process, serve to transport the oxygen, which they give up in their passage through the capillary vessels.'"

After adducing facts in proof of the higher temperature of the blood in the left than in the right side of the heart, and the greater proportions of carbon and hydrogen in venous than arterial blood, the author continues :—

"Yet Liebig asserts, that 'arterial and venous blood have the same temperature.' It is therefore evident, that his whole theory of respiration and animal heat is fundamentally erroneous; while in some respects it is even more defective than that of Black, Lavoisier, Crawford, and Dalton, who maintained rightly, that animal heat is evolved in the lungs, and given up by the blood to the solids in the systemic capillaries; but without explaining what office it performs in any of the vital functions. And so far is it from being true, as maintained by Liebig, that 'the globules of the blood take no share in the nutritive process,' that they are far more abundant in arterial than in venous blood, as proved by the numerous experiments of Prevost and Dumas, Denis, Lecanu, and others. It is therefore manifest, that while passing through the capillaries, a portion of them are dissolved, expended in nourishing the solids, and in maintaining the various secretions.

"It is one of the most extraordinary facts in the history of modern science, that Liebig should have neglected to ascertain the difference between the temperature and chemical composition of arterial and venous blood; for this very difference constitutes the key to a right knowledge of animal physiology. Had this celebrated chemist given us more analysis and fewer hypotheses, he would have avoided many grave and fundamental errors, which now essentially detract from the value of his work." 902.

In reference to the advocates of the influence of the *Nervous System* Dr. Metcalf observes :—

"In reply to the arguments of Brodie, Philip, Tiedmann, Edwards, and others, who contend that animal heat is generated by nervous influence, secretion, nutrition, the condition of the blood, and muscular contraction, I shall proceed to prove that the mean healthy temperature of all animals is directly in proportion to the amount of their respiration: without which there could be no sanguification, secretion, nutrition, nervous influence, nor muscular contraction, and that they have mistaken effects for the cause of animal heat."

He then proceeds to demonstrate that the activity of all the functions,

and the elevation of the temperature of the various classes of animals, is in a direct ratio with the vigour of their respiratory powers; and thus sums up:

"We are authorised therefore, to conclude, that the intelligence of animals is directly in proportion to the development of their nervous system; but that their powers of digestion, circulation, secretion, nutrition, absorption, muscular motion and cerebration, depend upon the amount of caloric they derive from the atmosphere by respiration. The specific office of the brain, spinal marrow, and their nerves, including those of the ganglionic system, is to endow animals with sensation, perception, memory, volition, instinct, and all the attributes of mind,—to *direct* the various movements of the body, but not to supply the moving power;—to generate ideas, but not organic products. It is very true, that the nervous system is far more highly developed in warm than in cold-blooded animals; but we shall see presently, that this is owing to the greater activity of nutrition in the former. It is also very true, that when the nerves going to a voluntary muscle are irritated, contractions are produced, and that, when divided, it can no longer contract in obedience to the commands of the will. But if the locomotive organs be not supplied with arterial blood, they become cold, insensible, and paralytic, whatever the condition of the brain may be. And if the blood be not supplied continually with caloric by respiration, it cannot excite the brain to think, and will, the nerves to feel, the muscles to contract, and the glands to secrete." 600.

The action of the Heart is excited by the blood which its cavities receive; and this fluid is enabled to effect this by reason of the caloric it has derived from the lungs. This is seen in the experiment of causing the renewal or suspension of the pulsation of the organ, when it has been removed from the body, accordingly as it is exposed to an elevated or diminished temperature, and that independently of the influence of oxygen or other agent. So, too, corresponding to the amount of caloric they receive from their vigorous respiration, the pulsation of the heart is stronger and more frequent in birds than in any other animals; while whatever tends to lower the temperature of the body also diminishes the action of the heart.

Digestion.—The solvent power of the gastric fluid does not depend upon the influence of the nerves going to the stomach, as their division does not destroy it.

"Nor have we ever had the slightest proof that electricity is essential to the process; for the experiments of Dr. Philip have been repeatedly proved to be fallacious, and therefore require no comment. But that caloric is the principal agent upon which the solvent power of gastric juice depends, would appear from a variety of considerations. 1. We have seen that digestion is far more rapid in birds than in mammalia, and more rapid in the latter than in cold-blooded animals. 2. It has been proved by the experiments of Dr. Beaumont, that when gastric juice is taken from the stomach, and kept in phials at the temperature of the body, it converts aliment into chyme; but that when kept below the temperature of 40°, it produces no more change than so much water. 3. That the digestive power in man is in proportion to the quantity of his respiration, which is augmented by moderate exercise and agreeable emotions, but diminished by repose and the depressing passions. 4. I also found that when the stomach was weak, digestion was wholly arrested by drinking half a pint of cold milk during winter, attended with flatulence, colic and nausea, that lasted for above twelve

hours. The danger of drinking cold water when exhausted by over-exertion, is well known in warm climates, where it often destroys life suddenly. Dr. Beaumont states, that on giving to St. Martin a gill of water at 55° when the stomach was empty, its temperature was reduced from 99° to 70°, at which it stood for a few minutes, and did not regain its normal standard until thirty minutes had elapsed. Cholera, gastritis, dysentery and diarrhœa, are often produced by cold drinks, ice-creams, &c." 629.

Process of Nutrition.—This the author is by no means disposed to look upon as the great mystery supposed by some physiologists. After repeating the changes in temperature and composition which the blood undergoes during its circulation, he continues :

"In this state, it excites the left ventricle of the heart to contract, by which it is impelled into the ultimate tissues of the whole body, where the caloric just received in the lungs, together with a portion of arterial blood, percolate the delicate coats of the capillaries, unite with the solids by vital affinity, and form the various secretions by glandular action. As proofs of what has just been stated, the temperature, vital activity, and renovation of all the organs, are constantly maintained at the expense of arterial blood, during its conversion into the venous state, while passing through the systemic capillaries, where its temperature is reduced, the number of its organic particles diminished, and its power of sustaining the healthy state of the different functions is greatly impaired,—when it returns to the lungs for a fresh supply of organic particles and living fire. If the temperature of the blood were not raised above that of the solids while passing through the lungs, there could be no transition of caloric from one to the other—no combination of its proximate constituents with the membranous, bony, muscular, and nervous tissues. Nor could chyle and venous blood be converted into the arterial state, without giving off carbon and hydrogen in the lungs, by which caloric is evolved, the temperature of the blood elevated, and its composition renewed. * * * * * * * * * The inference is obvious that animal heat is the agent by which the vital affinities are produced, and the activity of the various tissues maintained. Nor is this any more remarkable, than that the chemical union of water with the aromatic constituents of tea, coffee, medicinal infusions, and many other bodies, including the various salts, should be owing to the transition of caloric from one to the other. Nor is it more strange, that the caloric disengaged in the lungs during respiration, should there convert chyle into blood, than that the same active principle should cause oxygen and hydrogen to unite in the formation of water, or that solar caloric should determine all the chemical and vital transformations of the vegetable world." 666.

After protesting against the hypothesis which explains secretion and nutrition by nervous influence, he continues—

"Is it then possible that physiologists are in doubt whether the fluidity of the blood is owing to the same cause which determines the fluidity of the ocean? Or is it possible that the Author of Nature would have ordained that the temperature of arterial should be higher than that of venous blood, if the difference were not essential to the well-being of the animal economy? The truth is, that this 'slight difference' (as it is termed by Dr. Southwood Smith) constitutes one of the most important facts connected with the whole theory of physiology, pathology, and therapeutics. In accordance with the views of the ancients, who believed with Homer, that 'strength is derived from spirits and from blood,'—it is now completely established, that the contractile power of the muscular system, whether voluntary or involuntary, is directly in proportion to the quantity of arterial blood with which they are supplied, and the rapidity of the circulation

through them. But that caloric is the spirit on which its power of maintaining their activity and strength depends, is manifest from the facts already stated, that if the temperature of the blood be not raised above that of the solids, while passing through the lungs where it is formed, it cannot unite with their substance: and that whenever the general system is reduced below the natural standard by the abstraction of its vital heat, or by a deficient supply of it by respiration, all the energies of the animal machine are proportionally diminished.

"On the other hand, whenever the temperature of the living body is raised much above the natural standard, so that the solids are brought nearly to an equilibrium with that of the arterial blood, the operations of secretion and nutrition are nearly suspended, and all the energies of life, proportionally diminished. The reason of which is, that under such circumstances, there is very little caloric transferred to the solids in combination with the blood, which therefore returns to the right side of the heart, of nearly the same temperature, florid hue, and quantity of organic particles, as when it left the lungs. Hence it is, that when the system is raised above the natural standard, as during the immersion in the hot bath, or surrounded by an atmosphere from five to ten or more degrees above the healthy temperature of the body, as in the tropical portions of Africa, New Holland, India, and South America, during the heat of the day, all the powers of mind and body are prostrated, attended with syncope, apoplexy, and frequently death, if not relieved by cooling ablutions, by which the system is reduced to its natural *plus* and *minus* condition of arterial blood and of the solids. For it is a certain fact, that without this essential condition, none of the vital functions could be carried on." 672.

Climate.—Having thus stated the importance of the agency of caloric in the organization of animated beings, the author next illustrates his theory, by a long and interesting review of the effects which it produces upon the physical, intellectual and moral condition of man, as evidenced in the inhabitants of different climates. He observes—

"Thus it is, that no great, wealthy, populous, and highly civilized nation, has ever existed in either very hot or very cold climates. If man be dwarfed in stature, and all his higher faculties blunted, by the torpifying agency of intense and long-continued frost—he is equally degraded by the perpetual influence of an elevated temperature, which blackens his skin, renders his hair coarse, harsh, and curly, while it impairs the vigour and beauty of his whole organization."

After describing the defective organization of the Negro, he continues:

"It is therefore not surprising that for thousands of years the natives of Africa have remained in a state of the grossest barbarism—nor that they have been reduced to slavery by the Egyptians, Phœnicians, Persians, Greeks, Romans, and nearly all the nations of modern Europe.

"It is certainly true, that some of the most populous, wealthy, and highly civilized nations of antiquity, flourished in Southern Asia and Northern Africa; as in India, China, Arabia, Syria, Egypt, Tyre, Sidon, and Carthage. But the climate of these countries is moderate, compared with that of tropical Africa and New Holland; or intermediate between what I have denominated hot and temperate climates. For example, the mean annual temperature is 70° at Algiers; in Winter it is 61.4° and 82.8° in Summer; while at Cairo in Egypt, the mean of the year is 72.4°, that of Winter 58.4°, and that of Summer 85.3°. Corresponding with this intermediate climate, is the physical character of the natives, who are neither black nor white, but dark brown, olive, or yellow; with long and slightly curled hair, regular features, sparkling eyes, slight but muscular frames, well-formed heads, and a considerable share of intelligence.

"It has been said that 'there is nothing more difficult to explain fully, than

the immense superiority of Europe over the other quarters of the world." But I shall endeavour to show that it is, because the climate of middle and southern Europe is more temperate and uniform. In the first place, there is nothing better established by history, than the superiority of man in temperate latitudes. The once populous and wealthy nations of Egypt and Syria were conquered by the Persians, Medes, Greeks, and Romans—the Chinese by the Tartars—Italy by the Germans, Goths, and Huns—North Africa by the Romans—and the East Indies by the British, who are now invading China.

* * * * *

"The climate most favorable to a high developement of the human race, would seem to be one in which the mean annual temperature approximates that of the whole earth, which is about 50°, and in which the variations are small, as in the middle latitudes of Europe, where the average of Summer is seldom more than 10° above the mean of the year, and that of Winter seldom more than 10° below the same standard. For man has attained to greater perfection in Great Britain, Germany, Holland, Belgium, Prussia, Sweden, and Russia, than in any other quarter of the world." 721.

In considering the varieties of stature, configuration, &c. which the inhabitants of various countries present, we must ever bear in mind a "law of Nature, *that in man and all the higher animals, respiration is augmented in proportion as the surrounding temperature falls below the point at which they are capable of maintaining themselves at the natural standard, but diminished in proportion as the atmosphere rises above that point, cæteris paribus.*" Thus in the inhabitants of some of the coldest regions, the thorax becomes disproportionally large to the rest of the body; and yet the organization is not vigorous in proportion to the quantity of caloric passing through the tissues, owing to its rapid abstraction by the surrounding cold air. In tropical countries the chest is more narrow, and less in circumference than in higher latitudes—the caloric of respiration, not being so readily dissipated, accumulates in the system, "producing a disagreeable sensation of preternatural warmth, the tendency of which is to diminish the action of the lungs."

The ill effects of the climate of Africa are spoken of as follows:

"The greater mortality of tropical Africa than of the West Indies must also be sought in the vast difference between their climates. For although the mean annual temperature is nearly the same, it rises 20° higher during the heat of the day in Central Africa, while it often descends to 60° at night, and sometimes to 50° or even to 42° in the morning before sun-rise—making a diurnal range of from 50° to 70°; whereas in the West India Islands it is only from 10° to 20°. Besides, owing to the vast bodies of alluvial lands, which are converted into swamps and morasses, by periodical inundations of the rivers in tropical Africa, a much larger amount of malaria is generated, than in islands of a moderate size and a milder temperature.

"Corresponding with this state of things, we learn from travellers that the negroes on the Senegal, Gambia and Niger, like those of Central Africa, are generally a feeble, indolent, and phlegmatic race, who seldom live beyond 60 years of age—who are grey, wrinkled and decrepit with age at 45; while in health, strength, beauty, and intelligence, they are greatly inferior to the natives of the elevated plains of ancient Æthiopia and Abyssinia, or those of North or South Africa. But when removed to the milder climate of St. Domingo, and other West India Islands, it is said by Collins and others, that in two or three generations, they improve greatly in all the endowments of body and mind. As a proof of this, some of the black Creoles of Hayti have been distinguished for

courage, ability, information, and patriotism. We have also seen in the temperate climate of the United States, the increase of the negro population is nearly the same as that of the whites, notwithstanding the number of emigrants annually added to the latter.

"It is, therefore, not true, as supposed by Prichard, that negroes are under the same disability to thrive and multiply in cold and temperate climates, as Europeans within the Tropics. Nor is it true, as maintained by Caldwell, that 'the negro is most healthy, long-lived, and attains the highest perfection of his nature in his native country;' on the contrary, there is but little reason to hope, from the history of the past, that he will ever rise much above the state of barbarism in the tropical portions of his own country. Why, then, should men, calling themselves philanthropists, be so anxious to remove the black population of the United States, (where they multiply faster, and live longer than almost any other people in the world,) to the Western Coast of Africa, where the mean duration of life is not much above 20 years, as among the colonised blacks of Sierra Leone and Liberia? It is a wicked and reckless expenditure of life and money." 774.

The effect of climate, in determining the disease of man, is thus spoken of—

"Thus we perceive that in Britain, the Canadas, Nova Scotia, and New Brunswick, about one-half of the mortality is from diseases of the respiratory organs; whereas, in the warm climate of the Mediterranean, they form about $\frac{1}{5}$ of the whole,—in the West Indies nearly $\frac{1}{7}$,—and not $\frac{1}{100}$ part among the white troops in tropical Africa. We are also informed by Tulloch, that in the East Indies, where the mean annual mortality varies from 70 to 90 per 1000, nearly the whole was from fever, dysentery, diarrhœa, and diseases of the liver:—that, among 74,850 native troops serving in Madras, the mean annual ratio was only 1 per 1,000 from all diseases of the lungs: and but 2·4 in the Mauritius and at St. Helena. We farther learn from Dr. James Johnson's work on Diseases of Tropical Climates, that from 1827 to 1836, the proportion of deaths from diseases of the respiratory organs was $\frac{1}{11}$ of the whole at Calcutta, at Chinsurah $\frac{1}{16}$, and at Berhampore $\frac{1}{20}$. In North Africa, the mortality from phthisis is still less, according to M. Guyon, a medical officer of the French army, who states that from 1838 to 1841, it was only $\frac{1}{46}$ of the whole among the Moors at Algiers, among the Jews $\frac{1}{37}$, and about $\frac{1}{20}$ among the Europeans.

"But why is it, that the mortality from diseases of the lungs is so much greater among the negroes of the West Indies than among Europeans? And why are the latter so much more liable to fevers when removed to tropical climates, than the natives? The solution of these difficulties must be sought in the radical differences of organization of men, and other animals, in cold or temperate, and in hot climates. For example, we have seen that, owing to the high temperature of tropical Africa, for the greater part of the year, during the heat of the day, respiration is proportionally diminished, and the lungs exercised less, than in colder climates, by which the size of the thorax is accommodated to the wants of the system. So that when removed to the West Indies, where the maximum temperature is from 10° to 20° lower, the natives of Africa are unable to obtain caloric from the atmosphere by respiration, as fast as it is abstracted by the surrounding media, especially in the high lands, or during the prevalence of northerly winds, and early in the morning, when the air is damp.

"The consequence is, that, under such circumstances, they are often found shivering with cold, but never complain of the most intense heat of the sun, which is no less delightful to their feelings than conducive to health. * * * * Nor is it until several generations after his removal to a colder climate that the thorax of the African is developed to the same extent as that of

the European; so that like the monkey, the lion, tiger, and leopard, he is proportionally subject to diseases of the lungs. On the other hand, as the lungs are more exercised in temperate and cold climates, the thorax is more highly developed among the whites, who therefore obtain a larger amount of caloric by respiration, *cæteris paribus*, by which they are enabled better to resist the influence of a low temperature. But, for this very reason, when removed to the burning climate of tropical Africa, India, and America, they receive caloric from the atmosphere by respiration faster than it is carried off, causing the temperature of the body to rise above the natural standard, and predisposing it to attacks of malignant fever." 784.

Why the respiratory organs should be so especially liable to become diseased in the higher latitudes is thus stated—

"I answer, because the pulmonary air-cells and Schneiderian membrane present an extensive surface to the atmosphere; and that, in cold climates, they are exposed to the paralysing influence of a low temperature, more constantly than any other part of the body. The consequence is, that as animal heat is the immediate cause of all vital action, the chemical function of the lungs, sanguification and circulation are diminished, constituting the first link in the chain of the morbid phenomena, which are essentially the same in all cases, modified, however, by the condition of the system, the nature of the part more immediately affected, and the greater or less intensity of the exciting cause."

According to the condition of the individual, and the extent of exposure, mere catarrh, any of the inflammatory affections of the lungs, or phthisis itself may be induced. The author believes, indeed, that *phthisis* may, in almost every case, be traced to inflammatory affections of the lungs or bronchi, or to the influence of repeated colds which might often have been avoided. Indeed, he seems to doubt the hereditary nature of the disease, although admitting that it may be induced, even at the earliest ages, by exposure to predisposing and exciting causes.

However formidable the influence of cold may be in the production of disease, a long-continued exposure to a very elevated temperature is still more fatal to the human race:—thus the yellow fever of the East and West Indies, the malignant African Remittents, &c. are frequently of the most deadly character. In such climates "the process of respiration is nearly arrested, and the temperature of the solids is raised so nearly to an equilibrium with that of the arterial blood, that the transition of caloric from one to the other, on which the process of nutrition depends, is nearly suspended, and all the energies of life are proportionably diminished."

"*Malaria.*—Although we may not know precisely whether malaria depends chiefly on the agency of carbonic acid and vicissitudes of temperature, or some yet undiscovered effluvia, in conjunction with heat, cold and moisture, we can clearly distinguish the manner in which they operate, and the effects they produce on respiration, sanguification, secretion, nutrition, and all the vital functions. Whether generated in large cities, confined dwellings, or marshy districts, its morbid influence is essentially the same, modified, however, in all cases, by climate and season, being always more concentrated and malignant where the temperature is highest *cæteris paribus*. And whether cholera be contagious or not like typhus, yellow fever, and plague, it is generated by foul air, bad diet, filth, cold, moisture, fatigue, and the depressing passions, where none of them before existed." 821.

Of investigations into the nature of malaria, the author thus speaks—

"I therefore appeal to the candour of all enlightened minds, whether it is not more in the spirit of true science, to ascertain the influence of carbonic acid, and of all other gaseous emanations which are known to arise from the decomposition of dead matter, than to seek for the nature of malaria in some mysterious and hypothetical condition of the atmosphere about which nothing is known? And whether vicissitudes of temperature do not constitute a still more important condition of what is termed malaria, than even carbonic acid, or any other mephitic gas. For it is certain, that in hot climates and seasons, exposure to fatigue during the heat of the day, and to the cool damp air of night, are by far the most common exciting causes of fever, the malignity of which is in proportion to the elevation of temperature where it prevails, *cæteris paribus*." 827.

The last division of this work is principally devoted to the application of the principles already advanced to hygiene and therapeutics, and to a new theory of fever.

Exercise.—Lavoisier instituted the first accurate experiments upon the influence which exercise exerts upon respiration.

"Thus it would appear that respiration is augmented above 100 per cent. by exercise, beyond what it is in a state of repose; and that it is increased about 40 per cent. after taking a hearty meal. Hence men in health can endure a temperature of 32° during moderate exercise, with more comfort and safety, than one of 50° while in a state of rest; and that, when supplied with an abundance of food, they can endure the most intense degrees of cold, so much better than during abstinence, as observed by Franklin, Ross, and other travellers in the Arctic regions.

"As it is a law of nature that the cause of force is always expended in producing motion, it will be found that the vital heat of animals is wasted more rapidly during violent exercise, than it is obtained by respiration. The truth of this proposition is proved by the well-known fact, that long-continued muscular exertion is followed by more or less exhaustion, and by diminished power of enduring cold. For notwithstanding the elevation of temperature thus induced, the absolute amount of caloric in a state of combination with the organs, is reduced below the usual standard; while it is equally obvious, that in proportion as respiration is increased during violent exercise, must it be diminished afterwards, for the plain reason, that a large amount of carbon and hydrogen by which the vital combustion is supported, has been already given off in the lungs.

"As a further proof that the caloric obtained by respiration, and transferred to the different organs in combination with arterial blood, is forced out and expended during their action, it was ascertained by Dr. Granville, that during the violent contractions of the uterus which mark the progress of difficult parturition, its temperature sometimes rises to 110° or even 120°. Edwards also relates a case of tetanus, on the authority of Dr. Prevost, in which the temperature of the body rose 12.6° during the spasms." 879.

The effects of exercise carried to the extent of *fatigue* are thus spoken of:—

"A correct knowledge of the manner in which animal heat is expended by exercise, will enable us to explain why it is that, when greatly fatigued, health is often destroyed by immersion in the cold bath, which suddenly reduces the body below the natural standard, paralyses the lungs, diminishes respiration, and thus lays the foundation of pneumonia, phthisis, or some other fatal malady, if not prevented by immediate recourse to the warm bath, or the application of dry heat, until the circulation is perfectly restored. Nor is there a more frequent

predisposing cause of fever, dysentery, cholera, diarrhœa, and congestion of the liver, than exposure to rain, fogs, damp night air, or even a moderately cool draught of air, when fatigued by over-exertion, especially in warm climates, where the small amount of caloric obtained by respiration is much sooner expended by exercise than in the higher latitudes; so that a very slight exposure brings on a chill, and torpor of the internal organs.

"Many persons imagine—and I am not sure that even medical men are wholly free from the same error—that the danger from exposure to cold after fatigue is owing to what they call an *over-heated* state of the body. But there is not the slightest danger of taking cold when the body is over-heated by the warm-bath, as proved by the Russians, who have found that it enables them to endure cold for a much longer time than they otherwise could; and that, after coming out of the vapour bath, the lower orders often roll themselves in the snow with impunity. The fact is, that whenever the circulation is languid, respiration is augmented by the warm bath, which increases the action of the heart, and causes a larger amount of blood to pass through the lungs in a given time." 886.

Aliments.—The following are the author's conclusions:—

"1. That each Zone affords in the greatest abundance those descriptions of aliment best suited to maintain the well-being of its inhabitants. 2. That excessively cold climates abound with animals which contain a large amount of oil and fat, that are rich in carbon and hydrogen, which afford an abundant supply of animal heat where it is most required. 3. That the middle latitudes abound with grass, grain, and domestic animals, which are less numerous, and contain a much smaller proportion of fat in hot climates, where there is an exhaustless profusion of saccharine fruits, gums and farinaceous aliments, that afford less carbon and hydrogen, therefore, less caloric by respiration, than animal food. 4. That the various species of grain afford a much larger amount of actual nourishment, than an equal weight of animal food, if we except cheese, butter, fat, and lean meat deprived of water. 5. That, during the process of respiration, starch, sugar, gum, and fat are converted into blood, by absorbing nitrogen from the air, and by giving off carbon and hydrogen; consequently, that the elements of respiration, when combined in due proportion, are employed in nourishing the solids, like fibrin, albumen, and casein, of both animal and vegetable food. 6. That as the chemical composition of all animals is the same, herbivora must derive a portion of their nitrogen from the atmosphere, because their food does not contain enough of that element to maintain their nutrition and growth, which are even more rapid than in carnivora. 7. That the living body is a self-repairing machine, which has the power of transforming both ternary and quarternary compounds into its own tissues; and when wholly deprived of food, is capable of living many days on its own ruins, which are repeatedly renovated in the lungs, where they are also converted into carbonic acid, water, and other inorganic compounds. 8. That the rapid increase in the weight of the body after long abstinence or illness, the speedy healing of broken bones, the filling up of ulcers, and the rapid growth of the herbivora, tend to prove, that the nitrogenized portions alone of vegetable food are insufficient to account for the renovation of their composition, and the supply of waste. 9. That a suitable variety of vegetable aliments is better adapted to the organization, health, strength, intelligence, and moral excellence of the human race, than a diet of animal food alone. 10. That although spirits, wines, and malt liquors, when taken in moderation, elevate the temperature of the body, augment the circulation, produce a temporary flow of spirits, remove the sensation of hunger, fatigue, and other disagreeable feelings—they impair the vital properties of the blood, and diminish its coagulating power when used in excess—derange the

nutritive process, cause a dropsical or phlegmatic condition of the solids, and gradually destroy the *vis medicatrix naturæ*, as shown by the slow healing of wounds and ulcers in intemperate drinkers." 937.

Sleep.—The author believes that the system increases its dimensions during sleep, and that these become diminished during action, or to use his own phraseology, that, during exercise the expenditure exceeds the income, while, during sleep, the income exceeds the expenditure. If the body be well covered, more animal heat is retained within it than during exertion; but as less is now obtained by respiration, if it be not covered it becomes chilled. Whatever diminishes the circulation of arterial blood through the brain, or impairs the vital activity of this organ, produces a tendency to sleep. Thus, full meals, spirituous drinks at night, &c. determine a flow of blood from the brain to the stomach; as do heated rooms, &c. to the surface; and, in both cases, sleepiness results. Hence, too, the delightful and soporific influence of the warm bath, after great fatigue.

"But excessive warmth is unfavourable to sound sleep—1st, by increasing the circulation of blood through the brain; and 2d, by raising the temperature of the solids nearly to an equilibrium with that of the arterial blood; by which the combination of its particles with the solids is diminished. Hence it is, that when oppressed with too much covering, we feel languid and unrefreshed on rising in the morning; and that men sleep more soundly in temperate than in hot climates, where nothing more conduces to healthful repose than cooling ablutions, or the tepid bath, before going to bed.

"Whatever greatly diminishes the nutritive process, tends to prevent natural sleep, which is therefore always imperfect, if not wholly interrupted during fever, and many other forms of disease. It is also frequently prevented by over activity of the nervous system, caused by mental anxiety and too intense thinking, which interfere with the nutritive process, and induce a feverish state of the brain, that may be relieved by cold applications to the head, putting the feet into warm water, and then getting into a warm bed--all of which tend to equalize the circulation, and diminish the morbid activity of the brain.

"It is maintained by Dr. Billing, that a warm bed is favourable to sleep, by causing a *plethoric state of the brain.* But, according to the observation of Blumenbach, the circulation is diminished in the brain, and its vessels are less turgid during sleep than when we are awake. Hence it is, that strong tea and coffee prevent sleep, by augmenting the circulation and activity of the brain; and that when the blood is determined from the surface and extremities by sleeping in a cold bed, and sent to the brain in augmented quantities, we are kept awake until the circulation is equalized by warmth. Sleep is more sound during the early part of the night, when the nutritive process is actively employed in repairing the previous waste, than towards morning, when it is often partially interrupted by dreams." 949.

On Temperaments.—Dr. Metcalfe attempts a simplification of the classification of these. Since caloric is the agent by which the blood is formed and converted into the various tissues, it must be the ultimate regulator of constitution and temperament. As the quantities of the organic particles of the blood, and the vital energy of animals are proportionate to the capacity of the lungs and amount of respiration, so a broad, deep, full chest becomes the mark of what the author calls the *dynamic temperament;*

while persons whose chests are narrow, flat, and small, and in whom respiration, sanguification, and nutrition are imperfectly performed, belong to the *adynamic temperament.*

The dynamic embraces the sanguine and choleric of Richerand, and the thoracic of Thomas, with some other subordinate varieties. Thus, in persons of a large chest, sound lungs, robust health, and small brain, we have what may be called the *muscular* or *athletic* temperament, as in boxers, pedestrians, various savage tribes, and some classes of operatives. With a broad, round, full chest, and muscles moderately developed, there may be a large and well-formed brain, constituting the *cerebral* or *intellectual* temperament—the choleric of the ancients—comprehending some of the noblest specimens of the human race. When the chylopoietic viscera are more highly developed than the brain, we have what Thomas terms the *abdominal* temperament—Shakspeare's "fat ribs and lean pates." The thorax may be well formed, and the head moderately large, but an undue proportion of the rich arterial blood is expended in the secretion of fat—such excessive secretion denoting imperfect sanguification produced by excessive alimentation, want of exercise, or some defect in the function of respiration. All these varieties of the dynamic temperament may be so mixed in different individuals, as to form several subordinate varieties.

"On the other hand, whenever the thorax is below the ordinary size, or the function of respiration is imperfect, there is a deficiency of animal heat, and of rich arterial blood, with a languid state of all the vital forces—constituting the weak or *adynamic* temperament—whether the muscles, brain, or abdominal organs predominate. But if the nervous system be considerably more developed than any of the other tissues, we have that variety termed by the ancients the *melancholic*, which corresponds with the *nervous* temperament of modern physiologists. For they are both represented as marked by a small chest, pale, sallow, or livid complexion, (indicating a deficiency of bright arterial blood,) a languid circulation, torpor of the stomach, bowels, and of all the secretions, a spare habit, soft, small, and feeble muscles, morbid sensibility, sudden fluctuations of temper, with a predisposition to nervous and spasmodic affections. And we have already seen, that the principal difference between this temperament and the phlegmatic is, that in the latter the abdominal organs are more highly developed than the brain, which is weak and lethargic.

"It is therefore evident that the adynamic temperament, whether cold and dry, or, cold and moist—whether denominated melancholic, nervous, or phlegmatic, and whether hereditary or acquired, is rather the effect of disease than a primitive or natural constitution. And that it is often acquired, would appear from the well-known fact, that many distinguished individuals who were originally of the sanguine temperament, have been rendered melancholic or nervous by grief, anxiety, intense study, a sedentary life, and repeated shocks of adversity; as exemplified in the characters of Dante, Petrarch, Tasso, Pascal, Cromwell, Newton, Voltaire, Rousseau, Zimmerman, Collins, Cowper, Burns, and Byron. The misery of such men is owing to a greater activity of the nervous system, than it has the physical power of supporting." 1004.

Although as a general rule it may be truly stated that the intellectual power of man is proportionate to the size of his brain, and especially the anterior portion of it, yet this is not always the case.

"Why is it that many individuals, with moderately-sized heads, possess far greater power and activity of mind than others who have large and well-formed heads?

"In reply to the above, I have already shown it to be a law of nature, that the power of any organ is in proportion to the amount of rich arterial blood with which it is supplied, the quantity of caloric that passes through it in a given time, *cæteris paribus*, and depends upon the amount of respiration.

* * * * *

"It is a great blessing to be born with a large thorax; for it offers the surest pledge of vigorous health and long life. Had all men such chests as the Duke of Wellington and Daniel O'Connell, disease would be greatly diminished, and the duration of life augmented. I am informed that six individuals of the Wellesley family, recently alive, had arrived at the aggregate age of 444 years, making the average of each 74 years. And Mr. O'Connell stated, in a speech last year, that among 22 children of his grandmother, 11 arrived at the age of 96 and upwards. Like the heroes of Greece and Rome, the physical energies of these illustrious Irishmen were developed by exercise in the open air, and its free circulation through their capacious lungs, without which they never could have endured so much bodily and mental exertion. With a full chest and sound lungs, men are enabled to endure degrees of cold, muscular exercise, loss of sleep, excesses in eating and drinking, that would soon shorten the lives of ordinary individuals." 1007.

Theory of Spasmodic Diseases.—That these are produced by reason of a diminished vitality of the brain, the author believes, because—

1. That in all the higher orders of animals convulsions are invariably produced by a great and sudden loss of blood; and may be caused by the sudden abstraction of animal heat, independently of the loss of blood, as in cramp from swimming in cold water. 2. That convulsions and death follow the introduction of active poisons into the stomach or circulation. 3. That a reduction of temperature several degrees below the standard is attended, as in the cold stage of ague, with a constricted state of the skin, and a spasmodic condition of the whole system. 4. Convulsions are produced by strangulation, or by whatever arrests or greatly diminishes the process of respiration, whether it be exposure to the mephitic gases, the rarefied air of high mountains, a blow on the head, or violent emotions of terror and other depressing passions.

On the other hand, no spasmodic disease can exist while the brain and general system are supplied with an abundance of good arterial blood.

The author applies these principles to the explanation of the chief spasmodic diseases, as epilepsy, tetanus, hydrophobia, &c. At the commencement, or in the progress of all these, he sees as their cause a diminution of the vital powers produced by the imperfect circulation of a deficiently arterialized blood. His means of relief consist in applying sufficiently early the warm water or vapour baths; and he criticises with severity the inconsistent nature of many of the heroic remedies so frequently essayed.

Theory of Fever.—The author, having alluded to the fact that the former portions of his work prove, that the predisposing and exciting causes of disease tend to the reduction of the temperature of the body, declares, "There never was a general fever without a previous reduction of temperature, which is the first prominent link in the chain of morbid phenomena, and the invariable cause of all the following symptoms." During such chill, the respiration is diminished, and the heart's action lessened in force

and frequency. The vital properties of the blood become impaired during the defective respiration, and from the absence of due elimination of excretory portions.

"It is therefore obvious that the proximate cause of fever is not an excess of bile, as maintained for the last two thousand years; nor debility of the brain and a spasmodic state of the extreme vessels, as supposed by Cullen; nor inflammation of the stomach and bowels as supposed by Broussais; but that the primary cause of these and all the other symptoms is a loss or deficient supply of the animating principle, and a consequent vitiated state of the blood, to which may be traced the universal debility of the brain, bowels, voluntary muscles, and the general feeling of soreness, with an aching in the back and limbs."

Nevertheless, during this, the cold stage, respiration, though imperfect, still goes on, and the caloric, which should have been employed in the process of nutrition, gradually accumulates; and the action of the heart becoming proportionally vigorous, the condition of torpor and cold becomes exchanged for one of inordinate heat and activity. The additional heat now obtained by respiration is, however, incapable of performing any healthy vital office, until the blood be restored to its natural state. In the case of intermittents, such purification occurs during the sweating stage. All varieties of fever are but modifications of the same disease, arising from different degrees in the intensity or duration of the causes producing them—the extent to which the vital properties of the blood become impaired, determining either a mere quartan intermittent, or the most deadly form of typhus, yellow fever, &c.

The author, believing caloric to be the grand animating principle of life, conceives almost all hygiene to consist in maintaining its source, the respiratory functions, in due activity; and in avoiding its direct abstraction by damp, cold, and excessive exertion. So, too, his treatment of fever, when it does occur, is simple enough; for, eschewing all heroic remedies, nay, medicines of any activity, altogether, he finds his panacea in the application of heat during the cold stage, and in its abstraction during the hot.

Theory of Inflammation.—Inflammation and fever are modifications of the same radical disease. The immediate cause of capillary circulation resides in the blood, and is owing to the transition of caloric from the blood to the solids, as in the process by which various fluids are forced through the pores and small tubes of dead matter. "In the great majority of cases an attack of inflammation is brought on by the immediate influence of cold, which retards the circulation through the capillaries, and diminishes their contractility. The consequence is, that they are dilated by means of the *vis a tergo*, engorged with blood, and tumefaction is induced. In the mean time, owing to the weakness and diminished cohesion of the vessels, there is an effusion of serum, lymph, and sometimes of red blood, into the cellular tissue, or other surrounding parts, by which the swelling is still farther increased. And as the onward motion of the blood is impeded, it is prevented from receiving the vitalizing influence of respiration, by which its nutritive powers are impaired: so that the animal heat sent to the part in combination with arterial blood, is not properly united with the solids, as during health, but given out in the free state, causing a local fever. Hence

the redness, tension, swelling, and heat, which are attended with more or less pain, owing partly to compression of the nerves, partly to morbid sensibility produced by the preternatural temperature, and still more, perhaps, to a failure of the nutritive process, any derangement of which is always accompanied with disagreeable sensations."

In treating inflammation we should endeavor at an early stage to remove its proximate cause, by increasing the circulation through the capillaries, which is best accomplished by the use of warm applications; and where the action of the heart is such that more blood is forced into the weakened vessels than can be circulated through them, or where extreme plethora prevails, moderate bleeding, general or local, may be had recourse to. "But the leading object should always be to restore the action of the weakened vessels, by a judicious and varied application of the agent on which all the powers of life depend."

Although we cannot agree with the author in attributing so universal an agency to the operation of caloric, we can recommend his work to the perusal of our readers, not only on account of the ability with which the theory it advocates is developed; but because it contains a very good *resumé* of the facts of medical and collateral science bearing upon the subject.

REPORT ON THE SANATARY CONDITION OF THE LABOURING POPULATION OF GREAT BRITAIN—SUPPLEMENTARY REPORT ON THE RESULTS OF A SPECIAL INQUIRY INTO THE PRACTICE OF INTERMENT IN TOWNS—made at the request of Her Majesty's Principal Secretary of State for the Home Department. By *Edwin Chadwick*, Esq. Barrister at Law. Presented to both Houses of Parliament by Command of Her Majesty. 8vo. pp. 279.

THE General Report on the sanatary condition of the labouring population did not comprise any examination of the evidence as to the effects produced on the public health by the practice of interring the dead amidst the habitations of the town population. We are informed that this omission arose from the subject being considered too great in extent, and too especial in its nature, to allow of satisfactory investigation at the time.

The materials on which the present Report is founded, appear to have been collected from every source where useful information was likely to be obtained—from ministers of religion called upon to perform funereal rites in the poorer districts—from persons of the labouring class—from officers of benefit societies and burial clubs—from undertakers chiefly engaged in the interment of the dead of the labouring classes—from foreigners, as to the various modes of interment in their own countries, and the administrative regulations thereon—and, finally, from eminent physiologists, as to the effects produced on the health of the living by emanations from human

remains in a state of decomposition. In this extensive range of inquiry, the moral as well as the physical facts developed, are often exceedingly loathsome, and read a lesson which we trust the Legislature will not be tardy in turning to some good account.

It appears that, although the necessity of removing interments from the midst of towns is very generally admitted on various considerations, yet statements as to the innocuousness of grave-yards, are supported by the general testimony "of a number of medical witnesses of high professional position, by whom it is alleged that the emanations from decomposing human remains do not produce specific disease, and further, that they are not generally injurious." It is justly observed, that the practical consequences of these doctrines extend beyond the present question, and are so important in their effects on the sanatary economy of all towns, as to require and demand careful investigation of the facts on which they are founded.

The first part of the Report is therefore devoted to the examination of the evidence for and against these conclusions, in order to determine the question of the healthiness or unhealthiness of inter-mural interments, in which an effort is made to trace the distinct effects produced by emanations from bodies in a state of decay and putrefaction.

The inquiry is subsequently carried forward to determine the injuries to the health of the survivors occasioned by the delay of interments, in which the moral evils produced by the practice are powerfully brought out.

The remainder of the Report, although highly interesting, is less within our province, as it relates chiefly to the expenses of burial proving a pregnant cause of delay—to the remedies proposed to obviate the evil, with lengthened details as to the practicability of ensuring for the public superior interments at greatly reduced expenses; enforced by examples of what has been effected in Germany, France, and America, by successful legislation for the improvement of tho practice of interment—and, lastly, to the result of experience in respect to sites of places of burial, the sanatary precautions necessary in respect to them, and the extent of burial-grounds at present existing in the Metropolis.

The concluding sections are devoted to a consideration of the moral influences of seclusion from thronged places and of decorative improvements in national cemeteries, and the necessity and nature of the superior agency requisite for private and public protection in respect to interments; in which is included, a scheme for the appointment of a staff of ten inspectors of public health, varying in rank and emolument from that of inspector-general of hospitals in the army and fleet, to that of regimental surgeons.

In the Appendix will also be found much valuable evidence on the regulations in force at Munich and Frankfort; on the existing defective arrangements for the verification of causes of death; on cases of infanticide committed partly for the sake of burial money; and a view of the extent of intra-mural burial-ground provided, as compared with the extent of extra-mural burial-ground required for the metropolis, &c.

With this short summary of the general scope and bearing of the Report we may now address ourselves more especially to the evidence on the effects produced by emanations from bodies in a state of decay, and the consequent

evils to be traced to delayed burial and interment in the midst of the habitations of the population.

The writer has not apparently gone "far a field" for evidence in favour of the innocuousness of putrefaction, consequently the testimony adduced of Dr. Warner of Boston, M. Parent Duchâtelet and Dr. Dunglison, not very conclusive in its nature, is very easily set aside: for instance, although the latter gentleman maintains that "we have no satisfactory proof that malaria ever arises from animal putrefaction singly," yet, unwilling to trust even this negative position alone, it is quickly guarded by the following admission.

"In stating the opinion that putrefaction singly does not occasion malarious disease, we do not mean to affirm that air highly charged with putrid miasmata may not, in some cases, powerfully impress the nervous system so as to induce syncope and high nervous disorder; or that, when such miasmata are absorbed by the lungs in a concentrated state, they may not excite putrid disorders, or dispose the frame to unhealthy erysipelatous affections. On the contrary, experiment seems to have shown that they are deleterious when injected; and cases are detailed in which, when exhaled from the dead body, they have excited serious mischief in those exposed to their action." 3.

So in reference to Parent Duchâtelet's statements, where he cites instances of the exhumation of bodies in an advanced state of decomposition, without any injurious consequences being experienced by the persons engaged in conducting them—the accuracy of M. Duchâtelet's evidence is very quickly disposed of in a Report of Dr. V. A. Riecke, of Stuttgart, on the Influence of Putrefactive Emanations on the Health of Man, in which the medical evidence of this class is closely investigated.—Dr. Riecke observes—

"When Parent Duchâtelet appeals to and gives such prominence to the instances of the disinterments from the churchyard of St. Innocens, and states that they took place without any injurious consequences, although at last all precautions in the mode of disinterring were thrown aside, and that it occurred during the hottest season of the year, and therefore that the putrid emanations might be believed to be in their most powerful and injurious state, I would reply to this by asking the simple question, what occasion was there for the disinterment? Parent Duchâtelet maintains complete silence on this point; but to me the following notices appear worthy of attention. In the year 1554, Houlier and Fernel, and in the year 1738, Lemery, Geoffroy, and Hunaud, raised many complaints of this churchyard; and the two first had asserted that, during the plague, the disease had lingered longest in the neighbourhood of the Cimetière de la Trinité, and that there the greatest number had fallen a sacrifice. In the years 1737 and 1746, the inhabitants of the houses round the churchyard of St. Innocens complained loudly of the revolting stench to which they were exposed. In the year 1755 the matter again came into notice: the inspector who was intrusted with the inquiry, himself saw the vapour rising from a large common grave, and convinced himself of the injurious effects of this vapour on the inhabitants of the neighbouring house. 'Often,' says the author of the paper which we have before often alluded to, 'the complexions of the young people who remain in this neighbourhood grow pale. Meat sooner becomes putrid there than elsewhere, and many persons cannot get accustomed to these houses.' In the year 1779, in a cemetery which yearly received from 2000 to 3000 corpses, they dug an immense common grave near to that part of the cemetery which touches upon the Rue de la Lingerie. The grave was 50 feet deep, and made to receive from 1500 to 1600 bodies. But in February, 1780,

the whole of the cellars in the street were no longer fit to use. Candles were extinguished by the air in these cellars; and those who only approached the apertures were immediately seized with the most alarming attacks. The evil was only diminished on the bodies being covered with half a foot of lime, and all further interments forbidden. But even that must have been found insufficient, as, after some years, the great work of disinterring the bodies from this churchyard was determined upon. This undertaking, according to Thouret's report, was carried on from December, 1785, to May, 1786; from December, 1786, to February, 1787; and in August and October of the same year: and it is not unimportant to quote this passage, as it clearly shows how little correct Parent Duchâtelet was in his general statement, that those disinterments took place in the hottest seasons of the year. It is very clear that it was exactly the coldest seasons of the year which were chosen for the work; and though in the year 1787 there occurs the exception of the work having been again begun in August, I think it may be assumed that the weather of this month was unusually cold, and it was, therefore, thought the work might be carried on without injurious effects. It does not, however, appear to have been considered safe to continue the work at that season, since the report goes on to state that the operations were again discontinued in September.

"Against those statements of Parent Duchâtelet, as to the innocuousness of the frequent disinterments in Père la Chaise, statements which are supported by the testimony of Orfila and Ollivier, in regard to their experience of disinterments, I would here place positive facts, which are not to be rejected. 'I,' also remarks Duvergie, 'have undertaken judicial disinterments, and must declare that, during one of these disinterments at which M. Piedagnel was present with me, we were attacked with an illness, although it was conducted under the shade of a tent, through which there was passing a strong current of wind, and although we used chloride of lime in abundance. M. Piedagnel was confined to his room for six weeks.' Apparently, Duvergie is not far wrong when he states his opinion that Orfila had allowed himself to be misled by his praiseworthy zeal for the more general recognition of the use of disinterments for judicial purposes, to understate the dangers attending them, as doubtless he had used all the precautions during the disinterments which such researches demand; and to these precautions (which Orfila himself recommended) may be attributed the few injurious effects of these disinterments. It, however, deserves mentioning, that, if Orfila did undertake disinterments during the heat of summer, it must have been only very rarely; at least, amongst the numerous special cases which he gives, we find only two which took place in July or August, most of the cases occurred in the coldest season of the year. I cannot refrain from giving, also, the information which Fourcroy gained from the grave-diggers of the churchyard of St. Innocens. Generally they did not seem to rate the danger of displacing the corpses very high: they remarked, however, that some days after the disinterment of the corpses the abdomen would swell, owing to the great development of gas; and that if an opening forced itself at the naval, or anywhere in the region of the belly, there issued forth the most horribly-smelling liquid and a mephitic gas; and of the latter they had the greatest fear, as it produced sudden insensibility and faintings. Fourcroy wished much to make further researches into the nature of this gas, but he could not find any grave-digger who could be induced by any offered reward to assist him by finding a body which was in a fit state to produce the gas. They stated, that, at a certain distance, this gas only produced a slight giddiness, a feeling of nausea, languor, and debility. These attacks lasted several hours, and were followed by loss of appetite, weakness and trembling. 'Is it not very probable,' says Fourcroy, 'that a poison so terrible that when in a concentrated state, it produced sudden death, should, even when diluted and diffused through the atmosphere, still possess a power sufficient to produce depression of the nervous energy and an entire dis-

order of their functions? Let any one witness the terror of these grave-diggers, and also see the cadaverous appearance of the greatest number, and all the other signs of the influence of a slow poison, and they will no longer doubt of the dangerous effects of the air from churchyards on the inmates' of neighboring houses.'" 6.

"An eminent surgeon" expresses his belief that no injury resulted from emanation from decomposing remains—*but* mentioning an instance in proof, where he suffered no injury, he admitted that his assistant was immediately after taken ill, and long remained so!

To prove the innocuousness of emanation from human remains on the general health, evidence of another class is adduced, consisting of persons acting as keepers of dissecting-rooms, and grave-diggers, and the undertakers' men, "who, it is stated, have pursued their occupations for long periods, and have nevertheless maintained robust health."

Investigation brings out some curious facts indicative of the fallacy of this class of evidence. "Professor Owen mentions a report of a robust man, the keeper of a dissecting-room, who appeared to be in florid health (which, however, proved to be less sound than he flattered himself) who was unconscious of having sustained any injury from the occupation—but it turned out, on inquiry, that he had always had the most offensive and dangerous work done by an inferior assistant!

If mere fattening were an evidence of occupation agreeing with a man, many of our readers might recall to mind the huge and portly figure of "George," of Windmill Street memory, who, some twenty years ago, seemed to bid defiance to all external agents—but, peace to his ashes!—the veriest scarecrows of leanness would have been loath to exchange their skins for his gloated rotundity!

So, frequently the sextons of grave-yards, who are robust men, attest the salubrity of the place, but on examining the grave-diggers, it appears that, as a class, they are unhealthy and cadaverous, and, notwithstanding precautions, often suffer severely on re-opening graves, and that their lives are frequently cut short by the work. There are florid and robust undertakers, but, as a class, with all the precautions they use, they are unhealthy, and one of them, of considerable business, states, "in nine cases out of ten, the undertaker who has much to do with the corpse is a person of cadaverous hue, and you *may almost always tell him wherever you see him!*"

Again—

"Medical papers have been written in this country and on the continent to show that the exposure of workmen to putrid emanations in the employment of sewer cleansing has no effect on the general health; and when the employers of the labourers engaged in such operations are questioned on the subject, their general reply is, that their 'men have nothing the matter with them:' yet when the *class* of men who have been engaged in the work during any length of time are assembled; when they are compared with classes of men of the same age and country, and of the like periods of service in other employments free from such emanations, or still more when they are compared with men of the same age, coming from the purer atmosphere of a rural district, the fallacy is visible in the class, in their more pallid and shrunken aspect—the evidence of languid circulation and reduced 'tone,' and even of vitality—and there is then little doubt of the approximation given me by an engineer who has observed dif-

ferent classes of workmen being correct, that employment under such a mephitic influence as that in question ordinarily entails a loss of at least one-third of the natural duration of life and working ability." 9.

Abundant evidence is, in fine, adduced to leave no shadow of doubt on any rational mind, that all emanations from the decay and putrefaction of animal bodies are injurious in the highest degree—deteriorating health, and greatly shortening the average duration of life. These influences are not the less fatal that the effects do not invariably, or even generally, appear in the form of acute disease—indeed, were it so, large masses of the population who have lived under their influence must have been exterminated. It is correctly remarked, that the injurious effects of diluted emanations are constantly traceable, not in constitutional disturbance at any one time—their effect, on the strong, is perceptible only over a space of time, and in a general depression of health, and a shortened period of existence.

The fact of the general offensiveness of such emanations, is adduced by Dr. Riecke also as an evidence of their injurious quality.

"Another circumstance which must awaken in us distrust of putrid emanations, is the powerful impression they make on the sense of smell. It certainly cannot be far from the truth to call the organ of smell the truest sentinel of the human frame. 'Many animals,' observes Rudolphi, 'are entirely dependent on their sense of smell for finding out food that is not injurious; where their smell is injured, they are easily deceived, and have often fallen a sacrifice to the consequent mistakes.' Amongst all known smells, there is, perhaps, no one which is so universally, and to such a degree revolting to man, as the smell of animal decomposition. The roughest savage as well as the most civilized European, fly with equal disgust from a place where the air is infected by it. If an instinct ever can be traced in man, certainly it is in the present case: and is instinct a superfluous monitor exactly in this one case? Can instinct mislead just in this one circumstance? Can it ever be, that the air which fills us with the greatest disgust, is the finest elixir of life, as Dumoulins had the boldness to maintain in one of his official reports? Hippolyte Cloquet, in his Osphrestologie, has attempted to throw some light on the effect of smell on the human frame, and though we must entirely disregard many of the anecdotes which he has blended into his inquiry, yet the result remains firmly proved that odours in general exert a very powerful influence on the health of men, and that all very acutely impressing smells are highly to be suspected of possessing injurious properties." 15.

Mr. Chadwick's general conclusions from the foregoing part of the Report is as follows:—

"The injurious effect of the exhalations from the decomposition in question, upon the health and life of man, is proved by a sufficient number of trustworthy facts;

"That this injurious influence is by no means constant, and depends on varying and not yet sufficiently explained circumstances;

"That this injurious influence is manifest in proportion to the degree of concentration of putrid emanations, especially in confined spaces; and in such cases of concentration the injurious influence is manifest in the production of asphyxia and the sudden and entire extinction of life;

"That, in a state less concentrated, putrid emanations produce various effects on the nerves of less importance, as fainting, nausea, head-ache, languor;

"These emanations, however, if their effect is often repeated, or if the emanations be long applied, produce nervous and putrid fevers; or impart to fevers, which have arisen from other causes, a typhoid or putrid character;

"Apparently they furnish the principal cause of the most developed form of typhus, that is to say, the plague (*Der Bubonenpest.*) Besides the products of decomposition, the contagious material may also be active in the emanations arising from dead bodies." 23.

How far the last paragraph may be borne out is a question upon which we will not now enter—but we are well satisfied of the general truth of these conclusions; and, although from the nature of the emanations, ever in operation with many other causes and influences, the attainment of any definite or proximate evidence of the extent of the operation of those emanations on the health of the population must be nearly hopeless in crowded districts, enough has been obtained to show that they are among the most fatal of the deleterious influences which waste and depress the vital powers, and fearfully abridge the natural term or duration of life. We shall presently find that the mere exposure during a few days in the close and crowded tenements of the poor to the emanations of a corpse, leads to the most fatal consequences; but, in the mean time, let us examine how far a superstratum of earth, such as is laid over the bodies in our metropolitan churchyards, shields the surrounding population from the effects of putrefaction after burial.

We find that in the Metropolis, on "spaces of ground which do not exceed 203 acres, closely surrounded by the abodes of the living, layer upon layer, each consisting of a population numerically equivalent to a large army of 20,000 adults and nearly 30,000 youth and children, is every year imperfectly interred. Within the period of the existence of the present generation, upwards of a *million of dead must have been interred in the same spaces.*" Again, "a layer of bodies is stated to be about seven years in decaying in the metropolis; to the extent that this is so, the decay must be by the conversion of the remains into a gas, and its escape as a miasma, of many times the bulk of the body that has disappeared."

This septennial process of clearing the ground by the conversion of solids into gases gives such a vast generation of the latter, which must be continually finding its way into the air we breathe, and the water we drink, that, unless they be wholly innocuous, alarm may well be felt at this increasing evil. But we cannot blind ourselves by any fallacy, to the deleterious nature of these emanations, for, although in a vast metropolis like this, where leakage from cesspools and leakage from coal-gas pipes alike exist, and where in fact there is every possible complication of mal-odorous emanations, popular perceptions as well as chemical analysis may be baffled by the combination of all, in affixing to any one its true amount of mischief, and the commissioners of sewers, the gas manufacturers, undertakers, &c. may each contend it is their neighbour, yet facts are sufficiently abundant to leave no doubt as to the effects upon the life and health of the surrounding population from the present system of burial.

At Ciudad Rodrigo—to take this part of the subject in its simplest form—where Sir James Macgrigor states 20,000 dead bodies were put into the ground within the space of a few months; all those exposed to the emanations from the soil, and obliged to drink the water from the sunk

wells *were affected by malignant and low fevers and dysentery*, or fevers frequently putting on a dysenteric character. And this, be it remembered, was in an open country.

In reference to the wells, it is obvious how widely this source of evil must extend to all classes. In vain are new squares and splendid mansions built for the wealthy and the noble, farther and farther apart from the densely-populated quarters, where narrow streets, close air, and squalid poverty combine to generate sickness, and mingle poison with the atmosphere—even in those places, where the air is less tainted, they can have no security that the water which they drink does not carry with it the seeds of disease and death, polluted with a churchyard's foul corruption and loathsome gases. We do not believe that this argument is required to induce our legislators to give prompt attention to this health-destroying evil, and devise permanent and efficient means for its removal. Nevertheless, it is right that it should be known that all—from the highest to the lowest—have a vital interest in the remedy which has been too long delayed for this deplorable state of things.

In consequence of various investigations in France, a law was passed prohibiting the opening of wells within 100 metres of any place of burial, but this distance is now found to be insufficient for deep wells, which, on examination, have been proved to be polluted at a distance of from 150 to 200 metres. In some parts of Germany there are laws equally prohibiting the opening of wells nearer than 300 feet.

It has been alleged that were bodies buried deeper, all the present evils to the surrounding population might be obviated. But, however deep a body may be buried it will decay, and so certain as a body has wasted, and by so much disappeared, so certain is the fact that a deleterious gas has escaped. Dr. Reid detected the escape of deleterious miasma from graves of more than 20 feet deep. Another consideration presents itself—if the interments be so deep as to impede escapes at the surface, there is only the greater danger of escape by deep drainage and the pollution of springs.

That this pollution of the springs is no imaginary evil or remote danger, we have sufficient evidence. Professor Brande states, that he has "frequently found the well-water of London contaminated by organic matters and ammoniacal salts,"—and he refers to one instance, "where the water of a well near a churchyard had acquired both odour and colour from the soil." Although some of the best springs in the Metropolis are said to be, fortunately, of a depth not likely to be considerably affected by the filtration of these gases through the layers of earth—yet how much that is deleterious may find its way, from these sources, even into the best springs, which escapes the chemist's tests and all its powers of analysis.

It would appear that the Houses of Parliament enjoy no enviable site from this cause. Dr. Reid reports—

"Where the drainage of the district in which the church may be placed is of an inferior description, and liable to be impeded periodically by the state of the tide, as in the vicinity of the Houses of Parliament, where all the drains are closed at high water, the atmosphere is frequently of the most inferior quality. I am fully satisfied, for instance, not only from my own observation, but from different statements that have reached me, and also from the observations of

parties who have repeatedly examined the subject at my request, that the state of the burying ground around St. Margaret's church is prejudicial to the air supplied at the Houses of Parliament, and also to the whole neighborhood. One of them, indeed, stated to me lately that he had avoided the churchyard for the last six months, in consequence of the effects he experienced the last time he visited it. These offensive emanations have been noticed at all hours of the night and morning; and even during the day the smell of the churchyard has been considered to have reached the vaults in the House of Commons, and traced to sewers in its immediate vicinity. When the barometer is low, the surface of the ground slightly moist, the tide full, and the temperature considerable—all which circumstances tend to favour the evolution of effluvia both from the grave-pits and the drains—the most injurious influence upon the air is observed. In some places not far from this churchyard fresh meat is frequently tainted in a single night, on the ground-floor, in situations where at a higher level it may be kept without injury for a much longer period. In some cases, in private houses as well as at the Houses of Parliament, I have had to make use of ventilating shafts or of preparations of chlorine, to neutralize the offensive and deleterious effects which the exhalations produced, while, on other occasions, their injurious influence has been abundantly manifested by the change induced in individuals subjected to their influence on removing to another atmosphere. No grievance, perhaps, entails greater physical evils upon any district than the conjoined influence of bad drainage and crowded churchyards; and until the drainage of air from drains shall be secured by the process adverted to in another part of this work, or some equivalent measures, they cannot be regarded as free from a very important defect." 29.

Nor should it be forgotten that the effects of the escape of these deleterious gases is not the less when scattered over a town, because in a multitude of scents they escape observation.

We deem it unnecessary to quote any of the very convincing examples of persons and whole families whose health, and, in some instances, whose lives, are shown to have been undoubtedly destroyed by a residence in the neighbourhood of the churchyards of the metropolis. These, indeed, were scarcely needed to fully bear out the following conclusions.

"That inasmuch as there appear to be no cases in which the emanations from human remains in an advanced stage of decomposition are not of a deleterious nature, so there is no case in which the liability to danger should be incurred either by interment (or by entombment in vaults, which is the most dangerous) amidst the dwellings of the living, it being established as a general conclusion in respect to the physical circumstances of interment, from which no adequate grounds of exception have been established;—

"That all interments in towns, where bodies decompose, contribute to the mass of atmospheric impurity which is injurious to the public health." 31.

The inquiry into the injuries, physical and moral, to the survivors occasioned by the *delay of interments*, discloses a picture of misery and sickness at once hopeless and helpless, and of moral prostration and recklessness, such as no period of barbarism probably ever surpassed, and furnishes a bitter moral to our boasted civilization.

This part of the Report begins by premising that—

"In a large proportion of cases in the metropolis, and in some of the manufacturing districts, one room serves for one family of the labouring classes; it is their bed-room, their kitchen, their wash-house, their sitting-room, their dining-room; and, when they do not follow any out-door occupation, it is frequently their

work-room and their shop. In this one room they are born, and live, and sleep, and die amidst the other inmates." 31.

And the statistical inquiry made at Lord Sandon's expense by Mr. Wild, the Secretary of the Statistical Society, as to the condition of the working classes, shows that, in the parish of St. George's, Hanover Square, and in the immediate vicinity therefore of the most opulent residences of the metropolis, 1465 families had for their residence 2175 rooms, and of these 929 *families* had but a single room, and 623 only one bed! Need we wonder, then, at the statement which follows as a corollary, that out of 5945 persons 839 were found to be ill, and yet the season was not unhealthy. One family in eleven had a third room (but not unoccupied) in which to place a corpse. This however turns out to be a favourable view —from an examination made by a Committee of the Statistical Society into the condition of the poorer classes in the borough of Marylebone, it appears that not one family in a hundred had a third room. Moreover, it was found that 159 families and 196 single persons occupied *part of a room*, and 382 families and 56 single persons occupied one room each.

In this state of things let us see what takes place when sickness ends in death. In answer to the question of how long the dead body is retained in the room beside the living? Mr. Leonard, the medical officer of the parish of St. Martin's in the Fields, replies—

"If the person has subscribed to a club, or the friends are in circumstances to afford the expense of the funeral, it takes place, generally, on the following Sunday, if the death has occurred early in the week; but if towards the end of the week, then it is sometimes postponed till the Sunday week after, if the weather permit; in one case it was twelve days. In the other cases I have known much opposition to removal till after a subscription had been collected from the affluent neighbours; and in some instances, after keeping the body several days, I have been applied to, to present the case to the relieving officer, that it might be buried by the parish." 32.

"In what condition is the corpse usually, or frequently, retained?—Amongst the Irish, it does not signify of what disease the person may have died, it is retained often for many days, laid out upon the only bed, perhaps, and adorned with the best they can bestow upon it, until the *coronach* has been performed. Thus fevers and other contagious diseases are fearfully propagated. I remember a case of a body being brought from the Fever Hospital to Bullin-court, and the consequences were dreadful; and this spring I removed a girl, named Wilson, to the infirmary of the workhouse, from a room in the same court. I could not remain two minutes in it; the horrible stench arose from a corpse which had died of phthisis twelve days before, and the coffin stood across the foot of the bed, within eighteen inches of it. This was in a small room not above ten feet by twelve feet square, and a fire always in it, being (as in most cases of a like kind) the only one for sleeping, living, and cooking in. I mention these as being particular cases, from which most marked consequences followed; but I have very many others, in which the retention of the body has been fraught with serious results to the survivors.

"Will you describe the consequences of such retention?—Upon the 9th of March, 1840, M———— was taken to the Fever Hospital. He died there, and without my knowledge the body was brought back to his own room. The usual practice, in such cases, is to receive them into a lock-up room, set apart for that purpose in the workhouse. I find that upon the 12th his step-son was taken ill. He was removed immediately to the Fever Hospital. Upon the 18th the

barber who shaved the corpse was taken ill, and died in the Fever Hospital, and upon the 27th another step-son was taken ill, and removed also.

"Upon the 18th of December, 1840, I——— and her infant were brought, ill with fever, to her father's room in Eagle-court, which was ten feet square, with a small window of four panes; the infant soon died. Upon the 15th of January, 1841, the grandmother was taken ill; upon the 2d of February the grandfather also. There was but one bedstead in the room. They resisted every offer to remove them, and I had no power to compel removal. The corpse of the grandmother lay beside her husband upon the same bed, and it was only when he became delirious and incapable of resistance that I ordered the removal of the body to the dead-room, and him to the Fever Hospital. He died there, but the evil did not stop here; two children, who followed their father's body to the grave, were, the one within a week and the other within ten days, also victims to the same disease. In short, five out of six died." 33.

"Comparing the effects of the practice of retaining the bodies before interment, with the effects of emanations from the dead after interment, when buried in crowded districts, which appears to you to be the most pernicious practice?—When a body is retained in a small room, badly ventilated, and often with a fire in it, the noxious gases evolved in the process of decomposition are presented to persons exposed to them in a highly concentrated form, and if their health is in a certain state favourable to receive the contagion, the effect is immediate." 34.

Again, the medical officer of the Whitechapel Union, who is called upon to attend the dock-labourers, navigators, and bricklayers, chiefly, on being asked what was the general condition of a family among these classes when death occurred, states—

"Nearly the whole of the labouring population there have only one room. The corpse is therefore kept in that room where the inmates sleep and have their meals. Sometimes the corpse is stretched on the bed, and the bed and bedclothes are taken off, and the wife and family lie on the floor. Sometimes a board is got on which the corpse is stretched, and that is sustained on tressels or on chairs. Sometimes it is stretched out on chairs. When children die, they are frequently laid out on the table."

"What is the usual length of time that the corpse is so kept?—The time varies according to the day of the death. Sunday is the day usually chosen for the day of burial. But if a man die on the Wednesday, the burial will not take place till the Sunday week following. Bodies are almost always kept for a full week, frequently longer." 35.

And, turning from the physical evils in all their proteian forms, engendered and nourished until they bring forth their fruits in pestilence and death, if we inquire into the moral effects of this revolting and compulsory jostling together of the dead and the living—where death is robbed of all its solemnity and purifying influences by the imperious necessity of bringing it in daily and hourly contact with the cares and the wants of mere animal life—we find the unnatural union produces a hideous familiarity, and a callousness of feeling, which prepares men for the lowest depths of crime and degradation. Never are Nature's laws, thus violently outraged without retribution—death was no doubt intended to inspire us with solemn thoughts, not unmingled with awe, and to exercise upon our hearts a chastening influence—an influence at once tranquillizing and elevating. "When thou hast wept awhile," says Jeremy Taylor, "compose the body to burial; which, that it be done gravely, decently, and charitably, we have the examples of all nations to engage us, and of all

ages of the world to warrant—so that it is against common honesty and public fame and reputation not to do this office."

With this feeling at our hearts, let us turn once more to the present state of the labouring population of this metropolis, and see how far respect to the dead can be shown by these more than wretched inhabitants. Mr. Bestow, the relieving officer of Bethnal-Green, who is called upon to visit the abodes of this class, who on the occurrence of death fall into a state of destitution, which speaks of a lower depth still than their ordinary misery.

"Is the corpse generally kept in the living or in the working room?—In the majority of cases the weavers live and work in the same room; the children generally sleep on a bed pushed under the loom. Before a coffin is obtained, the corpse is generally stretched on the bed where the adults have slept. It is a very serious evil in our district, the length of time during which bodies have been kept under such circumstances. I have frequently had to make complaint of it. We are very often complained to by neighbours of the length of time during which the bodies are kept. We have very often had disease occasioned by it. I have known, in one case, as many as eight deaths, from typhus fever, follow one death: there were five children and two or three visitors whose illness and deaths were ascribed to the circumstance." 36.

A step further, and we read the moral effects.

"Do you observe any peculiarity of habit amongst the lower classes accompanying this familiarity with the remains of the dead?—What I observe when I first visit the room is a degree of indifference to the presence of the corpse: the family is found eating or drinking or pursuing their usual callings, and the children playing. Amongst the middle classes, where there is an opportunity of putting the corpse by itself, there are greater marks of respect and decency." 35.

Another witness states—

"When deaths occur in this class the corpse cannot be laid out without occupying the space where the family have to work (the father or mother weaving, and children winding or rendering other assistance), or in the room where they live and eat. This, I am of opinion, has a very debasing effect on the morals of this class of the community, making especially the rising generation so familiar with death that their feelings are not hurt by it: it has also a very injurious physical effect, frequently propagating disease in a rapid manner and to an immense extent." 41.

The truth of the following observations does not admit of doubt.

"The mental effects on the elder children or members of the family of the retention of the body in the living room, day after day, and during meal times, until familiarity is induced,—retained, as the body commonly is, during all this time in the *sordes* of disease, the progress of change and decomposition disfiguring the remains and adding disgust to familiarity,—are attested to be of the most demoralizing character. Such deaths occur sooner or later in various forms in every poor family; and in neighbourhoods where there are no sanatary regulations, where they are ravaged by epidemics, such scenes are doubly familiar to the whole population." 45.

Great as may be the physical evils to the survivors, and they are so great as scarcely to admit of exaggeration; the mental pain and the moral evil attendant on the practice of the long retention of the body in the rooms in

use, and amidst the living, is yet more deplorable; and we could have desired that these occupied a somewhat more prominent place in the present Report. They are by no means overlooked however, although in the evidence they are generally noticed only incidentally. It is remarked very justly that—

"The duty which attaches to male relations, or which a benevolent pastor, if there were the accommodation, would exercise on the occurrence of the calamity of death to any member of a family, is to remove the sensitive and the weakly from the spectacle, which is a perpetual stimulus to excessive grief, and commonly a source of painful associations and visible images of the changes wrought in death, to haunt the imagination in after-life. When the dissolution has taken place under circumstances such as those described, it is not a few minutes' look after the last duties are performed and the body is composed in death and left in repose, that is given to this class of survivors, but the spectacle is protracted hour after hour through the day and night, and day after day, and night after night, thus aggravating the mental pains under varied circumstances, and increasing the dangers of permanent bodily injury. The sufferings of the survivors, especially of the widow of the labouring classes, are often protracted to a fatal extent. To the very young children, the greatest danger is of infection in cases of death from contagious and infectious disease. To the elder children and members of the family and inmates, the moral evil created by the retention of the body in their presence beyond the short term during which sorrow and depression of spirits may be said to be natural to them is, that familiarity soon succeeds, and respect disappears." 44.

"Astonishment is frequently excited by the cases which abound in our penal records indicative of the prevalence of habits of savage brutality and carelessness of life amongst the labouring population; but crimes, like sores, will commonly be found to be the result of wider influences than are externally manifest; and the reasons for such astonishment, will be diminished in proportion as those circumstances are examined, which influence the minds and habits of the population more powerfully than precepts or book education. Among these demoralizing circumstances, which appear to be preventible or removable, are those which the present inquiry brings to light. Disrespect for the human form under suffering, indifference or carelessness at death,—or at that destruction which follows as an effect of suffering—is rarely found amongst the uneducated, unconnected with a callousness to others' pains, and a recklessness about life itself. A known effect on uneducated survivors of the frequency of death amongst youth or persons in the vigour of life, is to create a reckless avidity for immediate enjoyment. Some examples of the demoralization attendant on such circumstances, cannot but be apparent in the evidence arising in the course of this inquiry into other practices connected with interments.

"On submitting the above to a friend, a clergyman, whose benevolence has carried him to alleviate the sufferings in several hundred death-bed scenes in the abodes of the labouring classes, and who has been present, perhaps, at every death in his own flock, in a wretchedly crowded parish, he writes in the following terms his confirmation:—

"The whole of this I can testify, from personal knowledge, to be just. With the upper classes, a corpse excites feelings of awe and respect; with the lower orders, in these districts, it is often treated with as little ceremony as the carcase in a butcher's shop. Nothing can exceed their desire for an imposing funeral; nothing can surpass their efforts to obtain it; but the deceased remains share none of the reverence which this anxiety for their becoming burial would seem to indicate. The inconsistency is entirely, or at least in great part, to be attributed to a single circumstance—that the body is never absent from their sight—eating, drinking, or sleeping, it is still by their side; mixed up with all the ordinary functions of daily life, till it becomes as familiar to them as when it lived and

moved in the family circle. From familiarity it is a short step to desecration. The body, stretched out upon two chairs, is pulled about by the children, made to serve as a resting place for any article that is in the way, and is not seldom the hiding-place for the beer-bottle or the gin if any visitor arrives inopportunely. Viewed as an outrage upon human feeling, this is bad enough; but who does not see that when the respect for the dead, that is, for the human form in its most awful stage, is gone, the whole mass of social sympathies must be weakened—perhaps blighted and destroyed? At any rate, it removes that wholesome fear of death which is the last hold upon a hardened conscience. They have gazed upon it so perpetually, they have grown so intimate with its terrors, that they no longer dread it, even when it attacks themselves, and the heart which vice has deadened to every appeal of religion, is at last rendered callous to the natural instinct of fear."

"That it is possible by legislative means to stay the progress of this dreadful demoralization, which must, if no further heed be taken of it, go on with the increased crowding of an increasing population; that it is possible to abate the mental and physical suffering; to extend to the depressed urban districts an acceptable and benign and elevating influence on such impressive occasions; may be confidently affirmed, and will in a subsequent stage of this Report be endeavoured to be shown by reference to actual examples of successful measures." 46.

With these well-timed remarks we will leave this part of the Report. It is unnecessary to dwell upon a fact so generally known—that in all countries, in proportion to the want of respect for the remains of the dead, is the disregard for human life, and that any causes leading to the universal desecration of those remains throughout the labouring classes, must in the same degree tend to render life insecure, to loosen all the bonds of human sympathy which hold society together, and to generate a wide-spreading demoralization, undermining the very foundations of the social fabric.

We have the authority of the author of this Report for believing it is perfectly possible, by legislative means, to remove and obliterate all these crying evils which it is even revolting to contemplate. Can there be a moment's doubt or hesitation on the part of the Government or the Legislature as to the imperious necessity of putting hand to the work, and blotting out, now and for ever, this foul stain on civilization and reproach to a Christian nation? We trust not—and, notwithstanding the Secretary of State for the Home Department has stated in his place in the House of Commons, that he is unwilling to deal with this subject, until he has before him the Report of the Commission of Health of towns; yet we would fain hope—and earnestly trust, that unless this latter Report be certainly and speedily forthcoming, no speculative desire to make a comprehensive measure of amelioration will prevent the Government from applying themselves immediately to the removal of this vast and festering plague-store, which has fixed itself as it were in the heart and entrails of the labouring population, utterly helpless and powerless to struggle against the evil which prostrates them, without the aid of a large and effective measure of interments, organized and watched by Government, with a jealous eye to the emancipation of the poorer classes from all the debasing and brutalizing horrors which this inquiry discloses.

We are assured all our readers will think, in the words of the Report, that—

"It were a reproach to the country, and its institutions and its government, and to its administrative capacity, to suppose that what is satisfactorily done in the German states may not, now that attention is directed to the subject, be generally done at least as well and satisfactorily in this country; or that the higher classes would not in whatever depends on their voluntary aid, exhibit as good and practical an example of community of feeling in taking a lead in the adoption of all arrangements tending to the common benefit, as that displayed in the states which have achieved the most satisfactory improvement of the practice of interment, by well-appointed officers of public health." 196.

We have not space to enter into any analysis of a large portion of the Report, which develops the aggregate and average expenses of funerals among the different classes of society, and the corruption and other specific effects on the living, incident to excessive charges for funerals—the organization of burial societies by undertakers, and their arbitrary proceedings—exemplifications of the economy of efficient preventive sanatary measures to diminish the expenses of funerals—examination of the obstacles to an early removal of the dead for interment—the nature of the establishments for the reception of the dead at Frankfort, Munich and other parts of Germany—evidence of the popular desire for improved and comprehensive arrangements in respect to interments in towns—and improvements that might be effected through such arrangements in respect to registration of the causes of death. On all these subjects there is much valuable matter, but of secondary importance to the great questions in relation to which they are brought forward.

The measures proposed by the Reporter for the removal of the evils to which we have adverted, may be briefly stated to consist in a plan for extra-mural burials to the exclusion of all interments in towns, and the appointment, under Government, of a staff of public functionaries to be termed officers of health, whose duties he defines to consist in verifying the fact and cause of deaths by personal attendance at the abodes of the deceased—calling for inquiry if he saw cause of suspicion or doubt—in giving assistance and information to the survivors—being prepared with a tariff of the prices of burial, and with instructions as to the regulations adopted for the public convenience, and for the more respectful performance of the ceremony of interment;—thus guarding the unprotected widow and the orphan from the harpies of undertakers who hang round the habitations of the dead as a vulture hangs round its prey—to victimize, by extravagant charges and extortion, the survivors. Thus it would appear it is proposed to empower these officers to take such a course as this. Speaking to the widow and survivor of the lowest class, he might say—

"The inspectors of public health have been empowered to regulate the practice and the charges for interment, and to contract for and on behalf of the public to ensure the means of burial in a proper and respectful manner for the highest, as well as for the most humble classes. Formerly, the charge for the funeral of a person of the condition in life of your husband was four or five pounds, but by the new regulations, an equally respectable interment is secured to you for little more than half the amount. You are, nevertheless, at liberty to obtain the means of burial from any private undertaker. You may also, if you prefer it, have burial in any private cemetery, or elsewhere." 162.

In the case of illness amongst the survivors, or of a death from epidemic disease, indicating an infected atmosphere, he might add—

"For the protection of your own health, and the health of your children and of your neighbours. it is requisite that the body be immediately removed to a place where it will be kept under the care of a physician, and inspected until the appointed time of interment, when it will be received by the friends and relations who attend." 163.

This assistance and these duties to be performed for the benefit of the survivors, and free of all expense, the officers being salaried by Government.

Without going more into detail respecting the proposed plans, we may say, that reserving some inconsiderable modifications, we think the whole scheme admirable, and worthy of the most serious attention. We heartily and earnestly desire to see these suggestions embodied in a practical measure, under the sanction of the Legislature.

We have a few words, however, to say on a subject in which we differ considerably from Mr. Chadwick—both in his estimate of the labour, and expense of health and time, which the duties he has sketched out for the officers of health will entail; and the salaries which he conceives will form an adequate remuneration for such services. In this matter, and we say it with regret and reluctance, the Barrister at Law has alone presided, and his estimate seems to us to have rather been dictated by the solution of the question of the smallest possible expense at which educated medical men might be induced to sacrifice their career as practitioners and all hopes of fortune or advancement, to devote their talents, and risk health and life in carrying out the details of the most important measure of public health and polity which this century has produced—rather than a consideration of what would be a fair and adequate remuneration to such men, conscientiously discharging duties at once onerous, painful and hazardous and of the utmost importance to the safety and welfare of society.

If Mr. Chadwick, whose attention has been directed to the scale of remuneration for medical men in the army and navy, had not been limited by the view we have adverted to, he could scarcely, with the example before him, that the Government consider the medical officers, who have the direction of the department of the health of the army and of the navy respectively, worthy of emoluments approaching, if we are not mistaken, £2000, per annum, have sought to fix the remuneration of the officer who was to undertake the direction of the department of the health of the Metropolis, and more especially of a labouring population of near a million souls, at £657, with the privilege of driving a single-horse vehicle in the discharge of his lugubrious duties, at the public expense, on the principle that this would be good economy! Still less would he, proceeding downwards from this liberal miximum, have classed 10 officers, on whom the whole labour of working out the detail of the systems would follow, at the respective rates of staff and regimental surgeons.

These officers, be it remembered, are not to enter into private practice, they are to be subject to calls throughout their districts, to proceed at any hour of the day, if not night, to verify the cause of death—to go into the chamber of death—into scenes of wretchedness and infection—there, in the midst of ignorance, prejudice, and squalid misery, to convey information, give advice, and possibly to exercise a summary power to cause the dead body to be removed from the unwilling relations, and direct vari-

ous hygienic measures to prevent the spread of infection. Fifteen such visits the Barrister at Law calculates the officer may make each day of his life (as long as it may last under such discipline,) and for the pay of a staff-surgeon—just £350. per annum, or, upon an average, 1*s*. 2½*d* per visit.

Let us reflect for a moment what are the qualifications such an officer of health must possess, ably to discharge his duties, and which therefore the Barrister expects to obtain and adequately to remunerate by the specified salary.

It is contemplated that he should not only have competent medical knowledge obtained from an expensive education, and improved by experience in practice, to enable him to form a correct opinion on the various causes influencing health and disease, and occasioning death, and of the best mode, under adverse circumstances, of removing or lessening all deleterious influences that the means at his disposal will admit—but he must be a man of good judgment and knowledge of the affairs of the world, and of character. He must often be called upon to determine whether the reports of the circumstances and causes of death are true and worthy of credence, or whether just grounds may exist for distrust and inquiry under a coroner's inquest? If he fails in this, he fails in one of the most important functions of his office, and may, and undoubtedly would, entail many and serious evils where he was sent to convey comfort and assistance. Nor is this all—other qualifications are still required—he is to be sent to communicate with the most ignorant and prejudiced—if he goes with powers to coerce and no power within himself to convince and persuade, sharp and thorny will be his path to those habitations of the wretched and the poor, and slender benefit will attend his ministrations and assistance. Is it not evident that he must be possessed of no common or mediocre share of tact, prudence, and worldly knowledge to deal successfully and yet kindly with this class of the population? With the educated, official business may generally be smoothly transacted by a very ordinary man, and with exceedingly small expenditure of tact—it is not so with the lower classes, who, in proportion to their want of knowledge, require judgment and ability in those who would influence them for any good purpose—still more when the object contemplated runs counter to their strongest prejudices.

How different are these duties to the ordinary routine of officers of the army or navy! We will not say how different are the qualifications, for many there are in both those services, who possess them in an eminent degree; but few such, we firmly believe, will be found inclined to give up, in mature life, their comparatively easy and pleasant positions with the duties belonging to them, with all the chances of war and flood, for the emoluments of an Inspector of Public Health and the honors of a one-horse vehicle; even were it not more than probable that frequent sickness and a premature death would follow their exertions in the zealous discharge of duties, such as they are defined by the writer who estimates their salaries.

We conclude with a hope that Her Majesty's Government will speedily take the subject into consideration. The evil is great—the necessity for action urgent. We also trust that, when any measure is framing, the Government will be better advised than we conceive they are in the present

instance, and allow no mistaken views of economy to interfere with the efficient working of their measure by the medical officers to whom it may be confided. Because, in our overstocked profession, members of it are often driven, from penury and failure, to grasp at appointments like drowning men at straws, and to undertake duties however inadequately remunerated, it is not for a nation or a government to take advantage of such circumstances, and endeavour to obtain services of so important a character, without a fair and adequate remuneration. In reference to those duties sketched out in the Report, whether civilians or medical officers of the navy or army be selected, we emphatically pronounce the scale of remuneration suggested by Mr. Chadwick to be inadequate, and therefore unjust, and calculated to put in jeopardy the success of any large and comprehensive measure of the nature proposed.

A MANUAL OF MEDICAL JURISPRUDENCE. By *Alfred S. Taylor*, Lecturer on Medical Jurisprudence and Chemistry in Guy's Hospital. 8vo. pp. 693. London: John Churchill.

WE have seldom had occasion to exercise our critical functions with greater satisfaction to ourselves than in the instance of the work which we now introduce to the notice of our readers. The only objectionable thing connected with Mr. Taylor's book is its name, and even here the objection weighs in favour of the book itself, which is not, as the title-page would induce us to believe, a "manual," but the most elaborate and complete treatise on legal medicine that has hitherto issued from the press.

In a very well-written and appropriate preface, the author indicates the general bearings of his subject. We recommend the concluding remarks to the special attention of those practitioners who either depreciate the importance of the study of legal medicine, or indulge their indolence in neglecting its cultivation with the hope that they may never be called into a court of law as medical witnesses, or may escape grave responsibility should such an undesired event occur.

The various subjects treated of in the body of the work have been taken up in the order of their importance, and the proportionate space occupied by each has been allotted on the same principle. More than one third of the entire volume is devoted to practical toxicology, which of all departments of medical jurisprudence most frequently puts the knowledge of the medical practitioner into requisition.

In Chap. I. our author discusses the question "what is a poison?" He properly objects to the common definition of a poison as a substance which, when administered in small quantity, is capable of acting deleteriously on the body—a definition which would exclude many substances universally admitted to be poisons—especially some belonging to the irritant class. The following observations include Mr. Taylor's own definition.

"In legal medicine, it is difficult to give such a definition of a poison as shall

be entirely free from objection. Perhaps the most comprehensive definition which can be suggested is this: 'A poison is a substance which, when taken internally, is capable of destroying life without acting mechanically on the system.' Under this definition, it might be objected that the whole class of medicines, and numerous substances of an inert nature, would be included. Thus it is well known, that there are many cases on record in which cold water, swallowed in large quantity, and in an excited state of the system, has led to the destruction of life either rapidly by shock, or slowly by inducing gastritis. Any cold liquid such as iced water, beer or ice itself, may have an equally fatal effect. The action of water, or cold liquids, under these circumstances, cannot be said to be mechanical; it appears to be due to the shock suddenly induced on the nervous system through the lining membrane of the stomach, and yet it would be inconsistent to class these inert liquids among poisons. In all cases of this description, it appears to me, that we are justified in drawing the following distinction between poisonous and non-poisonous substances. If the deleterious effect does not depend upon the nature of the substance taken, but upon the state of the system at the time at which it was swallowed, the substance cannot be regarded as a poison. All poisonous substances are *per se* deleterious—the state of the system, setting aside for the present the peculiar effects of idiosyncracy and habit, has very little influence on their operation. The symptoms may be suspended for a time or slightly modified in their progress, but, sooner or later, the poison will affect the healthy and diseased, the old and the young, with a uniformity in its effects, not to be easily mistaken. A distinction of this kind cannot, however, be drawn except by a professional man, who has given attention to the subject of toxicology, and therefore it is no matter of surprise that poisoning should have been in more than one instance erroneously imputed, in cases where death has followed the drinking of cold liquids. In thus giving the medical definition of a poison, it is necessary to observe that the law never regards the manner in which the substance administered acts. If it be capable of injuring the health of an individual, it is of little consequence, so far as the responsibility of a prisoner is concerned, whether its action on the body be of a mechanical or chemical nature. Thus a substance which simply acts mechanically on the stomach, may, if wilfully administered with intent to injure, involve a person in a criminal charge, as much as if he had administered arsenic, or any of the ordinary poisons. It is then necessary that we should consider what the law means by the act of poisoning. If the substance criminally administered destroy life, whatever may be its nature or mode of operation, the accused is tried on a charge of murder or manslaughter, and the whole duty of the medical witness consists, in showing that the substance taken was the certain cause of death. If, however, death be not a consequence, then the accused is tried under a particular statute for the attempt of murder by poison (1 Vict. c. 85, sec. 2). The words of this statute are very general, and embrace all kinds of substances, whether or not they be popularly or professionally regarded as poisons. Thus it is laid down that: 'Whosoever shall administer or cause to be taken by any person, any poison or other destructive thing with the intent to commit murder, shall be guilty of felony, and being convicted thereof, shall suffer death.' The same administering with intent, &c., although no bodily injury be effected, is felony, punishable by transportation for life, for fifteen years, or imprisonment for any term not exceeding three years. Such is the present state of the law of England in respect to attempts at poisoning where death does not take place. While the words of the statute render it unnecessary for a medical witness, in such cases, to give judicially a very close definition of a poison; they impose upon him a difficulty which he must prepare himself to meet. The substance administered may not be a poison in the medical signification of the term, nor may it be popularly considered as such, and yet, when taken, it may be destructive to life. We have examples of substances of this description in iron filings, powdered glass,

pins and needles, and such like bodies, all of which have been administered with the wilful design of injuring, and have on various occasions, given rise to criminal charges. In cases of this kind, the legal guilt of a prisoner may often depend on the meaning assigned by a medical witness to the words *destructive thing*. Thus, to take an example,—liquid mercury might be poured down the throat of a young infant, with the deliberate intent to destroy it. A question of a purely medical nature will then arise, whether mercury be a destructive thing or not; and the conviction of the prisoner will probably depend on the answer returned by the witnesses. Should a difference of opinion exist, an occurrence by no means unusual in medical evidence, the prisoner will, according to the humane principle of our law, receive the benefit of the doubt." 5—7.

The foregoing extract may serve as an example of the plain, sensible, and practical manner in which our author treats his subjects. We are not quite content with his *definition* of a poison, because it will not apply to those poisons which are innocuous when taken into the stomach, but deadly when inserted beneath the skin, as the venom of serpents. It appears to us that a definition of a poison, to be accurate, must consist of two members. It would not be enough to say "a poison is a substance which, being taken into the stomach, or otherwise introduced into the living system, occasions death independently of any mechanical injury," becasue it might hence be inferred that it was indifferent, with respect to the poisonous operation of any substance, whether it were taken into the stomach, or introduced into the system, in any other way—which is not the fact. If we were asked to define a poison, we should do it thus:—"Every substance which, being taken into the stomach, is capable of causing death independently of mechanical injury, is a poison; and every substance which, being introduced into the living system, though otherwise than by the stomach, if capable of causing death independently of mechanical injury, is also a poison."

In the second chapter, on "the mode of action of poisons," our author has followed Orfila and Christison, adding, however, what was needful to bring his information quite up to the present time. Chap. III. is on "the classification of poisons," and that adopted is a modification of Orfila's, with what appears to us an improvement in the subdivision of the class of irritants. The contents of Chap. IV. are extremely valuable, and in a great measure new. They relate to "the rules to be observed in investigating a case of poisoning," and constitute an excellent guide to the practitioner in inquiries which are frequently among the most difficult in which he can be engaged, and which require much forethought, complete knowledge of the subject, and no small sagacity and readiness in applying that knowledge. Chapters V. to IX. inclusive treat of "the evidence of poisoning in the living subject"—"the evidence of poisoning in the dead subject"—"the evidence of poisoning from chemical analysis"—"the evidence of poisoning from experiments on animals"—and the question, "was death caused by poison?"

Adopting the general plan laid down by Orfila, and followed by Christison, Mr. Taylor has illustrated these important subjects with a great variety of cases, many of which have never appeared in any preceding work on legal medicine, while his own observations on these cases, which

are of the most pithy and practical character, give them a direct and useful bearing on the method of actually conducting medico-legal inquiries relating to poisoning. Chap. X. contains some "concluding remarks on general poisoning," and the following valuable statistical statements of the relative frequency of death from different poisons in England, Denmark, and France.

"In concluding this chapter," says Mr. Taylor, "I wish to call the attention of the reader to some facts connected with the statistics of poisoning. In relation to medico-legal practice, this is a subject of some interest; because it will indicate to the medical jurist what are the poisons that are most frequently selected for the purposes of suicide and murder, and with the properties of which it will be expected that he should be acquainted. Unfortunately very few tables of this kind have been published; and those which have appeared are defective in many points. One of the best is that which was published some years since from the returns made by the coroners of England, of the number of inquisitions held in the years 1837 and 1838, wherein death was caused by poison. The following is an abstract of the paper, which appeared in the Medical Gazette for November, 1839.

"The number of deaths by poison (returned) in the two years above-mentioned were 541, of which number 282 were males, and 259 females. The substances which caused death, may be taken in the following numerical order.

Opium.			
Laudanum	133		
Opium	42		
Other preparations	21	— 196	
Arsenic		185	
Sulphuric acid		32	
Prussic acid		27	
Oxalic acid		19	
Corrosive sublimate and mercury		15	
Mixed or compound poisoning		14	
Oil of bitter almonds		4	
Poisonous mushrooms		4	
Colchicum, nux vomica (of each 3)		6	
Nitric acid, caustic alkali, tartar-emetic, acet. morphia, strychnia, deadly nightshade, aconite, (of each 2)		14	
Bichrom. potash, nit. silver, Goulard's extract, sulph. iron, mur. tin, hellebore, castor-oil seeds, savin, hemlock, cantharides, cayenne pepper, (of each 1)		11	
			527
Unknown			14
			541

"It will be seen by this table, that the largest proportion of cases of poisoning in England are those by opium and arsenic: the greater number of the former being cases of suicide and accident, and of the latter, cases of criminal poisoning. The two next are tables, the one of the statistics of poisoning in Denmark, from the year 1830 to 1835, (Medical Gazette, January, 1840;) the other of about an equal number of cases observed in France, (Journal de Chemie Med. 1835.)

In Denmark.	
Sulphuric or nitric acid generally diluted	74
Arsenic	16
Caustic alkalies	5
Opium	2
Litharge, verdigris, (of each 1)	2
	99

In France.	
Arsenic	58
Verdigris	7
Corrosive sublimate	6
Cantharides	5
Nux vomica	4
Nitric acid	2
Sulphuric acid, acet. lead, carb. lead, sulph. zinc, tartar emetic, opium, (of each 1)	6
	88

"It is difficult to compare these two tables with the preceding—the number of observations being much fewer. Poisoning by arsenic is, however, proved to be very common. It is remarkable that the mineral acids should have caused so many deaths in the kingdom of Denmark, the proportion being no less than three-fourths of the whole number." 83—4.

The succeeding eighteen chapters are occupied with the individual poisons, the symptoms they excite, the treatment best calculated to obviate their effects, the means of detecting their presence, and other topics.

From the many discoveries and improvements recently made in toxicology, a revisal of the old processes for the detection of poisons was required, and our author, in conducting this task, has succeeded admirably in simplifying them, and giving certainty to their results.

Chap. XXII. and Appendix A. afford sufficient evidence of the success of his labours. They are manifestly the work of a highly-informed and thoroughly practical chemist and toxicologist, and by attending to the rules in Chap. XXII., the nature of a large number of poisons may be distinguished by a few simple tests, and in a few minutes' time. A material point for a medical witness is, that he should know what *objections* may be urged against the evidence founded on the chemical analysis of poisonous liquids. This point has hitherto been little attended to in works on legal medicine; Mr. Taylor, however, has, with great judgment, devoted a section, under the head of each poison, to the special consideration of all such objections, and pointed out the proper answer to each. The mode of determining the quantity of poison present in a suspected liquid—a question sometimes of great importance with reference to the presence or absence of malice in the act of poisoning—is also particularly explained; and attention has been given to the smallest quantity of each poison that has been known to destroy life, as well as the largest quantity from the effects of which a person has recovered. The longest and the shortest period within which each poison has been known to destroy life, has likewise been carefully adverted to.

Chapters XXIX. to XLI. inclusive, are devoted to the extensive subject of wounds, which is throughout treated in the most masterly manner. As an example, we would willingly transfer to our pages the entire chapter on gun-shot wounds, but our space will not admit of this, and any attempt to condense Mr. Taylor's observations would be doing them injustice; we will therefore content ourselves with extracting the following passage relating to the important and sometimes difficult inquiry as to the distance at which the piece which has inflicted a wound has been fired.

"The question whether a piece was fired near to, or at a distance from the wounded party, may become of material importance on a charge of homicide. Two persons may quarrel, one having a loaded weapon in his hand, which he may allege to have been accidentally discharged and to have killed the deceased. If the allegation be true, we ought to find on the body the marks of a near wound: if, however, it were such as that it had been produced from a distance, and therefore after the quarrel,—the medical proofs of this fact might imply malice, and involve the accused in a charge of murder. The following case occurred in Ireland in 1834:—A tithe-collector was tried for the murder of a man, by shooting him. It appeared in evidence, that the prisoner, while on duty, was attacked by the deceased and two of his sons, and he drew a pistol to intimidate them. He was dragged off his horse by these parties, and during the scuffle, it is supposed, the pistol accidentally went off, and inflicted a wound on the deceased, of which he died shortly afterwards. The sons of the deceased swore that the prisoner, when at some distance, took a deliberate aim, and fired the pistol at their father: and a priest came forward to depose, that such was the dying declaration of the deceased. From some subsequent suspicion of the truth of this story, the body, which had not been properly inspected in the first instance, was ordered to be disinterred. It was carefully examined by a surgeon, who was enabled to swear positively, that the pistol must have been fired close to the body of the deceased, and not at a distance; since there were the marks of powder and burning on the wrist. Hence it clearly followed that the pistol had been discharged during the scuffle, either by accident or in self-defence. The prisoner was acquitted, and the parties who had appeared as witnesses, against him, were indicted and convicted of perjury. In the case of Mr. Pearce, a surgeon, who was tried at the Central Criminal Court, in 1840, for shooting his wife, and was found insane, it appeared from the medical evidence that the pistol had been fired so near the person of the prosecutrix, that her dress was burnt and the skin blistered. Mr. Marshall relates that, when stationed at Ceylon with troops, a man who had but recently joined the regiment, was placed as sentry in a position, where he was occasionally fired at by the enemy from the surrounding jungle. The man was one day found severely wounded; the calf of his leg was greatly torn, the whole charge of a musket having passed through it. He attributed the wound to a shot from the enemy, but, from the skin of the leg being completely blackened by charcoal, it was clear that it must have arisen from the discharge of his own musket. He had inflicted this wound upon himself, in order to obtain a discharge from the regiment. These examples then show, that both the dress and skin of a person who has received a gun-shot wound should be closely examined. The result may be, that the statement given of the mode in which it was received, will be entirely disproved. The case of M. Peytel, tried in France, in September, 1839, presents many points of great interest in relation to the medical jurisprudence of gun-shot wounds. This gentleman was travelling in a carriage, in company with his wife and attended by a man-servant. The wife and the man-servant were found dead, on the road, and the account given by M. Peytel, was, that the servant had discharged a pistol into the carriage, and shot his wife, and he had afterwards pursued and killed him. The facts, however, were so suspicious against M. Peytel, that he was charged with the double murder. From an examination of the body of the wife, it appeared that there were two pistol wounds in the face, which had most probably been produced by two separate pistols. The prisoner alleged, that about nine o'clock at night, when it was dark, he desired the servant to get down in order to relieve the horses. Two minutes afterwards, some man, whom he afterwards found to be the servant, approached the carriage-door, discharged a pistol at him, and wounded his wife; but the evidence showed that two weapons must have been used, or at least two different discharges made by a person sitting very near to the deceased, so that the muzzles must have almost touched

her face, the eye-lashes and skin having been much burnt by the powder. These facts, together with other strong circumstances against him, led to the prisoner's conviction. Dr. Ollivier, who appeared in the prisoner's favour, considered that the deceased might have been shot by the servant, and that the two wounds might have been produced by one pistol loaded with two bullets: also, that the marks of burning about the face of the deceased, might be attributed to the wadding, and therefore they afforded no proof that the muzzle of the pistol had, at the time of its discharge, been close to her person. He also contended that the deceased had not died from the wounds. Notwithstanding these ingenious medico-legal arguments, there can be no doubt that the prisoner was very properly convicted (See Ann. d'Hyg. 1839, p. 399). It has been said, that when a bullet is fired near, it commonly traverses: and therefore it has been rather hastily assumed, that where there is only one external wound, and the bullet has lodged, there is a proof that the piece has been fired from a distance. This inference is, however, erroneous. A bullet may be fired close to the person, and yet not traverse the body, either from its impulsive force not being sufficiently great, or from its meeting with resistance in the body. Many cases might be cited to show, that in the near wounds produced by suicides and murderers, the bullets have not always traversed the body. In suicide, when the piece is discharged into the mouth, the projectile often lodges in some part of the cranium. In the late assassination of Mr. Drummond, the pistol was discharged close to the back of the deceased; the ball, however, had not traversed, it had lodged beneath the skin in the fore-part of the abdomen. It is then, it appears to me, out of the power of a witness to say, from the mere fact of a bullet lodging or traversing, whether the assassin was far off or near at the time the deceased was wounded. The latter point may sometimes be readily determined by the marks of injury and burning to the skin and dress." 411-12.

After a good chapter on burns and scalds, we come to the subject of infanticide, which occupies eight chapters. All the medico-legal questions connected with this subject are separately examined, and especial attention is given to the proofs of life and the causes of death—the two most important points in a case of child-murder. Chapters XLV. XLVI. and L. we may refer to in particular, as being full of valuable matter. In the first of these chapters, the hydrostatic test is very fully commented upon, and the many erroneous opinions with regard to it are confuted by a reference to conclusive facts. The cases in which this test will really assist a medical jurist, and those in which it fails to do so, are indicated as clearly as the nature of the subject will admit. At the conclusion of this, and of the succeeding chapter, the author shows, in a striking point of view, the extraordinary position in which medical witnesses are placed by the legal doctrines now prevalent on the subject of infanticide.

Chapter LI. is on "Drowning." We would here particularly direct the attention of the reader to the observations relative to the marks of violence on the bodies of drowned persons, which contain some matter that is both new and practical. In Chap. LII. on "Hanging," the results of Casper's experiments will be found, with some valuable observations on the mark produced by the cord. The subject of "strangulation" is usually considered in connexion with that of hanging, but has here a separate chapter (LIII.) devoted to it. Chapter XLIV. on suffocation by carbonic acid, contains many original experiments and observations, and, together with the succeeding one, on the effects of sulphuretted hydrogen, drains,

sewers, coal-gas, and mechanical smothering, forms an admirable exposition of all those medico-legal questions in which asphyxia is involved.

The subjects of the next chapter, "lightning, cold, starvation," afford little scope for original remark.

Chapters LVII. and LVIII. on rape, pregnancy, and delivery, contain a full illustration of every point connected with these subjects. In Chap. LIX. on concealment of birth, and criminal abortion, some new facts and observations will be found relative to what constitutes abortion in law. The remarks in p. 590 are of great practical value. The two succeeding chapters treat of birth, inheritance, gestation, premature births, protracted births, and paternity, and present some new and interesting medico-legal information. In Chap. LXII. the subjects of superfœtation, impotence, and sterility, are briefly, but sufficiently commented upon. The remaining four chapters are devoted to "insanity," and comprehend everything of importance relative to that state. The medical and legal tests of insanity, civil and criminal responsibility, restraint, interdiction, lucid intervals, and every point connected with the subject of unsound mind, which claims the attention of the medical jurist, are viewed in a strictly practical light, and with a direct reference to the conduct of medical witnesses in courts of law.

In an Appendix, we find a list of tests and apparatus required for the analysis of poisons, to which we have already referred, and an abstract of the Medical Witnesses Act.

In conclusion, we recommend Mr. Taylor's work to all our readers as the ablest, most comprehensive, and, above all, the most practically useful book which exists on the subject of legal medicine. Even Beck's, which has so long and deservedly held chief possession of the field, must now give way to a work which is more copious and fresher in its information, though smaller in its dimensions, and lower in its price. Any man of sound judgment who has mastered the contents of Taylor's Medical Jurisprudence, may go into a court of law with the most perfect confidence of being able to acquit himself creditably.

Periscope;

OR,

CIRCUMSPECTIVE REVIEW.

" Ore trahit quodcunque potest, atque addit acervo."

Notices of some New Works.

Observations and Reflections on some rare Varieties of Dislocation. By *F. Bouisson.*

M. Bouisson, Pathological Professor at Montpellier, has published a paper with this heading in the Annales de la Chirurgie. The observations appear to be principally suggested by some interesting specimens of pathological anatomy which have come under his notice.

1. *Dislocation of the 4th Thoracic Cartilage at its Costal Articulation.*—A man named Boudet was thrown from an ass in the month of January, 1838. Whilst Boudet was lying on his back, the animal trod upon his breast, the pressure being exerted principally upon the costal articulation of the 4th cartilage, which was driven in towards the cavity of the chest. When seen by the surgeon, the man experienced some pain and oppression about the seat of the injury. There was no contusion or ecchymosis, and it was easy to determine the exact nature of the lesion. The 4th costal cartilage was depressed backwards and downwards; the anterior extremity of the corresponding rib caused a slight projection externally, which, however, presented no inequality which could give rise to the idea of a fracture near the joint. On the patient's making a deep inspiration, the cartilage became replaced of itself, but was again luxated during expiration. The treatment consisted merely in applying a bandage sufficiently tight to render the parietes of the chest immoveable. The man recovered perfectly, and has since experienced no inconvenience from the accident.

M. Bouisson remarks that luxations of the costal cartilages appear to be but little known. Sir A. Cooper, indeed, states that sometimes a cartilage is separated from the anterior extremity of the rib, but adds that the cartilage then projects beyond the rib. In the present instance the projection, it will be seen, occurred in the opposite direction, and such, M. Bouisson thinks, must always be the case, especially if the seat of the luxation be in one of the five or six upper ribs. The triangularis sterni is inserted by digitations into the external extremities of the upper costal cartilages, and its contraction during expiration must draw them downwards and inwards with the more force as this muscle acts upon the extremity of the lever represented by the luxated cartilage. In inspiration, on the contrary, the triangularis sterni is relaxed, and the elevation of the cartilage is owing to the contraction of the pectoralis major which is inserted into its external surface. But this muscle acts under very unfavourable circumstances as regards the cartilages, and consequently a forced inspiration is requisite to enable one of these, if luxated, to return to its natural situation.

2. *Imperfect Dislocation upwards and outwards of the Acromial Extremity of the Clavicle.*—M. D——, in the month of July, 1842, fell in getting down from a diligence, striking the top of his right shoulder. Acute pain was immediately

experienced, together with a sensation as if something had given way. On examining the part, the external extremity of the clavicle was found to project slightly above the acromion, and to be dislocated upwards and outwards; but the displacement was very limited, the tip of the shoulder presenting no very apparent deformity. The patient could raise the arm and move it in every direction; but this exercise occasioned acute pain, and increased or diminished the amount of the deformity according to the direction of the motion. It was very easy to remove the displacement, by acting on the humerus, and carrying the tip of the shoulder upwards and outwards, and then making slight pressure on the extremity of the clavicle—this soon regained its normal position; the reduction was maintained by Dessault's apparatus. The patient did well.

M. Bouisson is of opinion that, in this case, the acromio-clavicular ligaments were ruptured, but that the force had not been sufficiently great to tear the coraco-clavicular ligaments, the thickness and resistance of which maintained the clavicle nearly in its original position. In ordinary cases of dislocation of the clavicle upwards and outwards, the displacement is much more marked, because *all* the ligaments which unite the clavicle to the scapula are lacerated; the clavicle is then easily carried upwards by the action of the trapezius, whilst the scapula is drawn towards the trunk, either by the effect of the blow itself, or by muscular contraction. Hence it follows that luxations of the clavicle in this direction may be said to be *complete*, when both sets of ligaments are ruptured; *incomplete* or *imperfect*, when the coraco-clavicular ligaments remain perfect.

3. *Sub-acromial Luxation of the Left Humerus, the Articular Surface of this Bone being directed outwards.*—In the collection of M. Dubrueil exists a preparation, of which the following is a description.

The humerus is turned round, and appears to have described a half-rotation upon its axis, so that its head or articular surface looks directly outwards and upwards, whilst the external tuberosity looks backwards and inwards. The bone is neither elevated nor depressed, but has been transported directly outwards during rotation, and has not passed the level of the posterior border of the acromion. The bicipital groove is placed behind, and corresponds to the external border of the glenoid fossa. The great tuberosity rests upon the external half of this same cavity, and presents traces of a superficial separation of osseous substance. The detached fragment is placed between the glenoid cavity and the head of the humerus. The capsular ligament is torn to a considerable extent at its humeral insertion, so that the articular head of the humerus can be seen external to the capsule. There is no trace of any false joint; the glenoid cavity and head of the humerus present their usual form and dimensions.

Unfortunately there is no history belonging to the preparation; but, as far as we can judge from the facts furnished by morbid anatomy, we may form the following ideas with regard to the case.

The luxation was not the effect of a fall or a blow, but it is probable that the arm, being seized by a machine, had undergone a rotation on its axis from within outwards. In this movement, the capsule being stretched on the cartilaginous demisphere of the humerus, was torn at the level of the anatomical neck, and the gyration of the bone continuing, so as to force the external tuberosity on the glenoid cavity, the muscles which are inserted into this process contributed to the separation of the portion of bone.

This luxation must have produced symptoms differing from those of the ordinary luxations. Here the top of the shoulder would preserve its habitual roundness; the arm placed by the side of, and parallel to, the trunk, would retain its ordinary length; but the palm of the hand would look outwards, the olecranon would be turned towards the corresponding side of the trunk; the transverse diameter of the humero-cubital articulation would be directed from before backwards. With regard to the means of reduction, it would probably be necessary to act upon the limb in the opposite direction to the luxating cause. The scapula

must be fixed, and the arm, seized by both hands, without making any traction upon it, must be rotated from without inwards, so as to bring the parts into their proper relations.

This dislocation is called by M. Bouisson the "luxation par renversement."

4. *Incomplete Luxation of the Upper Extremity of the Ulna forwards.*—A preparation in the possession of M. Dubrueil presents the following appearances.

The humerus of the right side is the seat of an oblique fracture directed downwards and inwards from the level of the epicondyle to the trochlea of the articular surface; there is, consequently, an internal portion continuous with the humerus, and directed very obliquely; and an external portion completely detached from the bone, and comprising the surface for the radius and the middle pulley of the articulation. This fragment is articulated with the radius by its lower border, is in contact with the great sygmoid cavity by its internal angle, and is connected by pseudarthrosis with the portion of the humerus which corresponds to the fracture. It is thus separated from the trochlea of the humerus by an interval in which is lodged the olecranon process. All the articular surface of the ulna is free, and measures by its transverse extent the amount of separation of the trochlea and the external fragment. The posterior fossa of the humerus is effaced, and this bone is united, by its fractured surface, to the upper extremity of the olecranon. Hence the olecranon, instead of being situated behind the humerus, is on the same plane with it in the interval produced by the fracture; and consequently the deposition of the parts represents an oblique fracture of the humerus with incomplete luxation of the ulna forwards.

5. *Simultaneous Luxation of the Bones of the Fore-arm backwards, and of the Lower End of the Ulna in the same direction. Fracture of the Body of the Radius.*—In the Winter of 1838, there was brought to the dissecting-room at Montpellier, the body of a man who had several years previously experienced an injury of the arm from a fall from a considerable height. No attempt had been made to reduce the parts at the time. On examination after death, both bones of the fore-arm were found to be dislocated on the humerus; the olecranon being very prominent posteriorly, and separated from the humerus by the whole thickness of the coronoid process. The radius is drawn up with the ulna, with which it retains its natural relations. The radius was fractured at its middle part. The lower extremity of the ulna was also dislocated backwards. The small internal articular surface of the radius was free and corresponded by its posterior border only to a small part of the circumference of the head of the displaced bone. The triangular fibro-cartilage was only incompletely torn, and still adhered by a few fibres to the radius.

6. *Luxation of the Femur directly backwards: Double Pseudarthrosis of the Head of this Bone with the lowest part of the Iliac Fossa, and of the Small Trochanter with the Outer Side of the Cotyloid Cavity.*—This preparation is in the Museum at Montpellier. The femur on the right side fixed to the innominatum in the direction indicated by the two false articulations, is bent on the pelvis at a right angle; its lower extremity is directed towards the median line, *and the whole bone is rotated outwards*, so that the great trochanter is carried backwards and outwards. The head of the femur, slightly deformed, is sustained by a very short neck, which corresponds to the upper part of the osseous surface which separates the sciatic notch from the cotyloid cavity. About this point the head is received in a circular depression of the ilium, which presents some rugosities on its surface, and is limited by an osseous ridge thicker in front than behind. Some remains of fibrous bands can be distinguished, to which it gave insertion, and which served to fix the head of the femur in its anormal situation. The second false joint exists between the lesser trochanter and the external side of the cotyloid cavity, the trochanter having been brought into this situation by

consequence of the projection of the head of the femur and the rotation of the bone outwards. The cotyloid cavity is partly obliterated, and is now triangular in shape.

M. Bouisson remarks, that we may now distinguish three dislocations of the head of the femur backwards. If a line be drawn from the anterior inferior spine of the ilium to the corresponding posterior iliac spine, then if the head of the femur is situated above this line, there is luxation upwards and backwards, or on the dorsum ilii: this is the most common of all the dislocations of the head of the femur. If the head of the bone be thrown below this line, then the luxation may be either backwards and a little downwards, the *ischiatic* variety of M. Gerdy, in which the head of the femur, the capsule having been ruptured, is depressed to the level of the tuberosity of the ischium: or it may be directly backwards either into the ischiatic notch; or, as in this example, on the convex surface which separates the notch from the cotyloid cavity; this may be called *præsciatic*. This form is distinguished from the preceding variety, not only by the difference in seat of the head of the femur, but also by the rotation of the limb outwards—a circumstance the more remarkable, that in all the other posterior luxations of the femur, the limb has been found to be turned inwards.

Memoir on the Present State of Naval and Military Surgery. Addressed to the Right Honourable Earl of Spencer, First Lord of the Admiralty. By *John Bell*. Yarmouth, January 20th, 1798.

We have been favoured by a friend with a copy of this Memorial of the celebrated John Bell, on a subject which is now attracting some attention. In another part of this Journal will be found a review of a pamphlet on the subject of Professorships of Military and Naval Surgery. Our reviewer, an accomplished army surgeon, has taken an unfavourable notice of the proposition, and his arguments are strong and powerfully urged. We have thought that it might be well to contrast with them the sentiments of Bell, that the public might compare the statements of both sides, and judge the more satisfactorily of their respective value.

With respect to the Memoir before us, it is scarcely necessary for us to point out the fire and energy which characterise it, or to dwell on that masculine vigour of style, which makes the writings of John Bell so eminently classic.—*Eds.*

My Lord,

Ever since I have been capable of thought, I have struggled for objects far beyond my reach to obtain. In this anxious moment, when I have about me no selfish views, no mean nor worldly cravings, no desires which I should not be proud to avow, there dwells upon my mind this oppressive and prophetic feeling, that I am perhaps going to suffer the sorest of all disappointments. I am upon the eve of either achieving by my zeal a great public good, or of preventing, by an imprudent and too sudden movement, a new order of things in that department which needs most of all to be improved.

But, my Lord, I have a claim upon your Lordship, which you will never refuse. I have studied Naval Surgery with particular care. I have bestowed upon it, of money, of time, of labour, more than I am entitled to bestow. I have followed your victorious fleet, and attended your prisoners and your wounded, as if I had been attached to Government by old services and high rewards. These, my Lord, are my privileges. I am now retiring from this busy scene, and all my claim to your Lordship's notice is this desire to be useful.

I am but ill prepared to speak upon the most interesting of all subjects; I am fearful of that enthusiasm, which is so apt to mix itself with thoughts such as

I am now to expose your Lordship; I am anxious, above all, to know how my advice may be received by those accustomed to judge of high matters:—yet still I feel myself entitled to propose the establishing of one great School of Military Surgery. It were almost, I think, an object of national gratitude; surely it were an institution humane, charitable, useful above all others; in my situation, I should feel what I now propose to be nothing presumptuous, nothing less than a sacred duty, which no fear of impropriety should repress. But when I perceive, by every movement, that it is the sincere wish of every man in power to raise this department to an honourable and distinguished rank—when their efforts are ineffectual only from the want of those suggestions which must come from medical men—I am no longer in doubt how my thoughts on such a subject will be received; and all those apprehensions which the nature of the occasion must excite, are lost in the exulting prospect of seeing a great national benefit grow out of this single thought, once vague and transient, but now rising in importance even while I am explaining myself to your Lordship. With such feelings labouring in my mind, and with an entire conviction that you will delight in whatever promises a public good, I must write with an enthusiasm in regard to the subject, and with a perfect freedom in all other respects, which your Lordship knows well how to excuse, perhaps to approve.

How shall I venture to tell you of the melancholy state into which the public service has fallen? It never was respectable, it is now disgraceful. Things are truly come to such a pass, that to point out the means of reformation must be a great relief. No plan of national education has ever been proposed. Every other branch of our profession is taught, apart and carefully, while Military Surgery, the most peculiar of all departments, has been left to chance; and in this line it is easy to trace the cause of many evils, too serious to be long thought of temperately or patiently. When a young man enters into the Navy, his education is but ill begun, and cannot improve. He is put down into a hole, there to remain for years. He is deprived of all communication, of all desire of knowledge. To breathe the vital air, he must live in the promiscuous conversation of a ward-room—Politics, History, Anecdote, News—everything is heard there but that which interests him most, which is the very business of his life. His youthful ambition is dead;—his profession! is forgotten; his first proud feelings, which sprung up with the first dawnings of knowledge, are buried there; his mind is vacant and powerless;—" and all his precious hours are running down to waste."

To the life of a navy surgeon there are, God knows, no seductions. Nothing, as it now stands, can drive a young man into such a service, but want of education, and want of friends; nothing can support him, even for a short term of years, through the difficulties and labours of this life, but a love of his profession, and a sense of duty above all obstacles—hardly, indeed, can any thing retain him in a service so poorly appointed, so little honoured; he never feels himself till he leaves it, returns to school, and begins his education anew!—and those pensions which Government has held out as permanent rewards, are but bribes for such young surgeons to continue their services only in the days of their ignorance, and to retire when they first become fit for service: thus do they complete their education with the accumulated wages of service which they could not perform. But behold, when their education is in some degree renewed, when they are fit to be received any where but in the fleet, they prefer the permanent establishment of village surgeon, in some remote and miserable place, to the service of the State; plainly declaring against that profession, to which they have given up the very prime and vigour of their life, a degree of contempt which, were it needful, I never should be able to express.

Be assured, my Lord, that while Government strives to attach men to its service—to lead them up to the knowledge of a difficult profession, through all the intricacies of a learned science, by money alone! it cannot succeed. Nor will

men ever delight in a profession which is not made respectable, honourable, and useful. Men trained to the sea, find themselves entered into a way of life full of danger, but full of honour, and for this sake they love it. But ours is a profession where a thousand ways are open to ambition; every situation is easy, and gainful, compared with this of the Navy; and from year to year our fleets are thoroughly drained of all those whom government wish to retain.

Indeed, my Lord, this is a serious business, and men willing to find, in all that has been done, nothing but negligence, profusion and waste, will say, in derision, "Here now we see, how Government may, by a mean economy, ruin the most important of all establishments, and bring matters to such a pass, that young men of the lowest education, of the slenderest means, shall refuse the service;—daily advertisements shall be quite neglected;—examination shall fall into utter disuse, and all shall be promiscuously received;—the British seaman shall be more helpless in the day of battle, than the peasant when employed in his peaceful labours;—the poor man providing from his hard-earned pittance help for himself and family in the hour of illness, while the most dangerous service hardly extorts from such a government the very appearance of care."

Those, my Lord, are the reproaches to which a government rather uninstructed than careless, is unhappily exposed; and it is all too true. Perhaps in a whole fleet there are few surgeon's mates, not one may be, who is able to perform the greater operations of surgery. It has happened that, often, after the most earnest entreaties of the officers, of the surgeon, of every one concerned, aboard; no, not one to screw a tourniquet, to tie an artery, to hold a shattered stump, to put a piece of lint to a bleeding wound!

These things, my Lord, must make a strong impression on the public mind, and must create very awful feelings in those who are concerned. Had those shots which have passed so often through the cock-pit, and which have killed so many among those who were already wounded, and who had retired to the place of help and safety! had one of these shots struck the surgeon—what must have been the condition of those who survived him! Inevitable death from wounds which are not deadly, is an awful sentence; who can bear it? Let the man of the most determined courage, my Lord, think but of this! and, if he have not that carelessness of life which deprives mere animal courage of all praise, let him say with what heart can he go into the midst of battle, where in a few moments all is horror, confusion and dismay; where the danger of the hour makes no respect of persons; where the high and lowly are laid side by side, dead and dying! and the, surgeon stands for a moment in his place,—alone—fixed and motionless,—with folded hands,—in horror and in deep astonishment at the situation in which he finds himself! "Can such things be, and you that behold them still preserve the natural ruby of your cheeks?"

Such are really the dangers to which that order of men are exposed, upon whom, more than ever in the annals of this empire, the very empire itself and all its future annals depend. I have, I hope, pressed these thoughts, as becomes me, not too rudely. Had the case been hopeless, I should have refrained; but while there is hope, I would bend with all the little power I have, on that lever which the weight of the state only can move. For this is indeed the truth; at one period of time we might have said "wars of conquest have surely ceased;" but we have lived to see conquest running her headlong course; overturning empires and states; and too well we know, that while we continue a maritime power, wars of commerce will never cease. We must maintain ourselves as a maritime power: this is the only means for internal safety in the present, and the only hope of our future success, even of our existence as a commercial state. Stations must be multiplied; new hospitals must be built; the whole establishment of our marine must be strengthened on every side; and nothing will give more splendour to the cares of Government, nor be more grateful to the public mind, than to see the Medical Department raised, improved, may I not say, created a-new.

It is not proved, my Lord, "that the state cannot attach men to its service early in life; nor train them through all the intricacies of science by money alone!" and were it not easy to propose to young surgeons an object really worthy of their ambition, and a scheme of education which would make them delight in their profession, and incline them continually to improve? For a well conducted education is the highest bribe—to become the member of a great school, is itself a privilege—and to rise, by force of abilities and knowledge, to the head of such a school, were a noble reward. These hold out that kind of hope which supports a man through every great duty, whether of perseverance or sudden exertion; of thought or of bodily labour. Unless you can fix his hopes on some grand system of life, you will never obtain from a young man those services which, with high motives, he is able to perform. If you would ensure his diligence, endow him with knowledge.

The institutes of a National School are easily imagined. The object is expressly defined. The instruments by which it is to be accomplished are in daily use—and all its consequences are as sure almost as the operations of a mechanical power. Give the Professor all the means of instruction; draw out in due form the subjects of his lectures; the forms of teaching; the rules, the privileges, and the oaths of the pupils; and mark these things down as the institutes of the school.

I. The Professor must teach with perfect care the essentials of anatomy; the great principles of surgery he must found upon these dissections: and all the great operations, all the accidents, which each part of the body is liable to, all kinds of wounds must be fully explained.

II. These general principles of the science must next be applied to the peculiar duties of the military surgeon; the Professor must teach carefully the peculiar nature of gun-shot wounds.

III. He must deliver a short code of military medicine explaining the fluxes, fevers, spasms, infectious diseases, and all the peculiar duties of the camp and hospital, and he must explain the scurvy, ulcers, infections, and all the disorders most frequent in ships of war.

IV. He must teach medical geography—the climates, seasons, coasts of various countries. The manner of conducting soldiers on a foreign expedition—the general care of their health—the choice of encampments—the forming of hospitals on shore—how to attend an army in the field—how to convert churches, granaries, public buildings, into occasional hospitals—how to lay the wounded in besieged towns—how to carry them off the field in a retreating army.

V. Along with these, must be taught military economies, diet, general medicine, exercise, clothing, and all methods of preventing disease. Without this knowledge, no man is entitled to serve. How few are thus taught? How few are fit for service? How few are there who are not conscious of those blurs and blots in their general education, which no diligence of their own can ever do away?

VI. The last, and not the least important duty of the teacher, should be to point out for his pupils a future plan of study, to make for them a selection of books; to deliver critical and practical observations on those which are to be most used. The teacher must not only instruct his pupils for the present; he must select objects for their future study. He must teach them this truth, that their education is only begun, and that the best of their studies remain as yet untouched; he must show them how to think for themselves, and then he may hope to reap in his turn the fruit of their labours, and live to see their observations and cases published under his own care; he may, after a regular book of anatomy and surgery, see the whole enforced and illustrated by cases and observations; and, working along with his pupils, he may perpetuate the institution, by publishing the works of Military School.

To perform his duties with spirit and energy, his place must look like what it is; the centre of a Great School, which stands in an eminent and respectable

station, whence well-instructed surgeons are continually going out on every line of service, and returning the inestimable benefit of a good education, with those kinds of knowledge for which they are well prepared; which they are continually collecting in all parts of the world; which they send willingly to that school with which they are still closely allied.

The Professor must in all respects have the perfect command of his school. He must have a Lecture-room, capable of being occasionally enlarged; he must have a Dissecting-room proportioned to so great a purpose, wisely conducted, no doubt, and modestly, but under the absolute protection of the law. He must have a Library, continually increasing, by certain fees, from occasional pupils. He must have a House of Assistants, like the clerks of a great hospital! one keeper of the library,—one a dissector for the class—two to inspect the pupils' dissection—and two must be appointed to write, under the direction of the teacher, his lectures, his studies, the communications from his older pupils, and the extracts from the books. The character of so rich an education for those young men whom the teacher might prefer to such stations, would ensure them all kinds of promotion, and would be such a reward as money could not equal.

But especially, I say, he must always have a perfect command of his school! a Uniform for those who are of the school, and who are to have the first seats—his place surrounded with walls—his pupils must come gratis to that school, and must take an oath "to be faithful to their studies; to be serviceable to Government in every way; to be diligent in all the occasional duties committed to their charge; to employ their time in lectures, reading, dissections, till that period arrive in which they are to be appointed to service." Let every one who comes rather as a stranger to the military school, sit behind the regular pupils, and pay his fees to the institution, for the support of the library, and for defraying the general expense. Let those who, having once taken the oath, would leave the service, pay up, upon forsaking the school, all their arrears of fees, and put off that uniform which is the badge of their attachment to their country. Let all the school have the privilege of attending some great hospital, or rather give some great hospital the privilege of having those pupils attend its operations, (with a small fee,) for such an attendance would almost create an hospital. Let the library be open daily;—let there be fires in all the rooms;—let them be made comfortable for study, and a sort of home for those attached to the school;—let the great volumes of anatomical plates lie always on the tables;—let books be issued in circulation every week;—let there be duplicates, according to the judgment of the teacher, of every useful book.

Those who, about to enter into this way of life, would begin a regular education; and those who are at this moment engaged in service might, by a perpetual circulation, pass through this school, have their education renewed, and be assimilated with the whole. The school would be full in time of peace; it would send out its surgeons with increased industry and knowledge, when we had declared war. The pupils of this school would be examined by a board of control, where their teacher should have a seat, but no voice; where he could have no other interest but that of instructing young men, so as to answer like masters in their profession, even before they had begun to practise, and should be able almost to annul and render void the foolish formality of examinations, not by ignorance, but by superior knowledge.

The master of such a school would spontaneously perform other and higher duties; he would have, from his very office, such energy, so high a sense of his public duties, such versatility of talent, that, in all emergencies, he would render important service to the state. He would plan hospitals; would go to assist the sick and wounded; would help in the detail of the new establishments. Is it not distressing that, when a fleet has suffered in some severe engagement, Government has no general surgeon, whose advices and service they can com-

mand, that their wounded are abandoned to the carelessness of ignorant men, and shipwrecked, I may say, upon their native shores? Perhaps in certain seasons, he might sail with fleets, or accompany armies, from a desire of further knowledge. Perhaps he would give occasional lectures at the setting out of any great expedition, going down to meet with the surgeons of the fleet, to inquire about all their little wants—to see that they were indeed prepared at all points, to converse with them, to lecture to them. All these occasional duties he should do without expense to himself, that he might do them easily; and they should be voluntary, that he might perform them with zeal.

My Lord, I know too well that plans of national schools have been but the reveries of enthusiastic men, and, in this sense, I would almost avoid the name; yet, surely, an institution having such objects as these, so expressly limited in its purpose, so entirely practicable, so sure of attaining its end, stands in the first rank among plans of national education. This is, to a state, the only security it ever can have of procuring well-instructed and diligent men. Promotion would no longer go by courtsey. Examinations would cease to be an unmeaning form. Examiners, who are now afraid to touch those whom they are sure to find ignorant, (and yet dare not reject,) would then examine severely, because they would find knowledge to grapple with, and would be able to select well-informed young men.

It is now well known, that there can be no other security. We assure ourselves of a man's knowledge rather by his education, than by questions which are so often conned for the occasion, and repeated coldly, without interest, without understanding. No University trusts to this slippery test, but requires, even for ordinary studies, a peculiar and regular education continued for years. Certain courses are required absolutely, more general studies may be added to them; but those must be performed. In this sense a Military School should be a regular College. It should be erected in the centre of other schools. The pupils should have the choice of other teachers, and inducements to various and liberal studies. They should be early attached, and with sensible and sober views, to that service which now they fall into by chance and misfortune. They should he early trained to those parts of knowledge which now they learn from books, too late in their course of service to be of much use. They should be well read in those authors who now fall into their hands by a sort of accident. While they had their choice of other studies, they should feel themselves peculiarly responsible for their perfect acquaintance with all the lessons of the Military School. They should have, in short, every inducement to serve, but should feel no bondage in serving. They should be attached to the School only by the usefulness of their studies, but they should be allowed to leave it with no other forfeiture than that of losing their place and precedence.

The security is perfect also;—because, for the studies of such a school, genius is not so highly necessary; diligence alone is required; in medicine and in surgery, above all! enterprise is dangerous, and experiment almost guilty.

That good sense which is so universally diffused, that plain knowledge which is so easily acquired, and that moderation which industry, and the knowledge of plain and simple matters always begets, are sufficient for all the occasions of life, and more to be prized, in my estimation, than the most splendid talents. How often is genius wild, ungovernable, dangerous? How much, on the other hand, do we value the marks of industry, humanity, modest knowledge, sure tokens of a useful man. And such, I am very sure, would be the character of every young man, who should issue from such a school.

It is true,—that in every great institution connected with a state, the Means also must be planned. But, my Lord, I am well assured, that this institution needs only to be put in motion; that a man, capable of arranging and conducting such a School, might make himself independent of all external aid; and (should Government be blind to so high an interest) could support himself in every

thing, but the splendour which attends the forms of a National School. For this plan of education belongs to one-half of those bred to our profession, since more than one-half of those educated to medicine in the common schools belongs to the Navy, the Army, the India Department, or our foreign dominions; and although, perhaps, the India department, might not directly contribute towards the establishing of such a school, yet where lectures were given on anatomy, and surgery, and naval medicine, and climates, and contagions, and all the accidents and adventures to which foreign troops are exposed, all the surgeons of the India department would become voluntary Cadets of that school, where alone they could learn their duties. Pupils not attached to Government would come to it from every department,—from all parts of the kingdom—perhaps from other countries. Their fees, given to the secretary of the institution, would defray much of the expense. The Library of itself would grow out of small fees, as every library must do. The Museum belonging to the school would be made in the school; the books which might be published as the works of the school would also be a source of gain. Every movement of such a machine should strengthen its powers.

In Mechanics, a great Engine wears out the very materials of which it is composed; but in Politics, the materials of a great institution like this, are in our hands: we have but to arrange them so as to begin the motion! and while the movement goes on, it draws into itself every thing which belongs to it, and becomes a great system, self-improving, and continually progressive, begetting an enthusiasm in all who are allied to it which supports the whole.

Even should it be apparently expensive, that expense would be repaid a hundred-fold; for ECONOMY OF LIVES IS THE GREATEST ECONOMY TO A STATE. And, indeed, we must have this ungracious thought still in our mind, that each sailor and soldier is but a living animal, strong and active, purchased for a certain use. Each costs Government a sum of money equal to the one-half of a surgeon's annual income. Then counting them but as living creatures, bought for a certain use, if in a year the surgeon saves, by his superior knowledge, but a few lives, he repays Government much more than that small sum which in the beginning of the year Government, I may say, had lent him; and this debt is so fairly returned by every improvement in the care of lives, that I am very sure the professor of such a school, and each of his pupils in his proper place, would repay the bounty of the state a hundred fold. Nothing would more strengthen the hand of power than a general establishment, which were at once grand and commanding in its aspect, and in its nature humane and useful.

Indeed, such an institution, under any government, and by all parties, should be praised and cherished. It would be to the state a saving of lives infinitely desirable—it would do away a flagrant reproach;—it would become to the public a rich property, which the simple idea itself would bestow almost without expense—it would be a fair succession and inheritance—an object of high ambition to all the surgeons attached to the service of the state. Then our ships would not go into battle without well-instructed Surgeons, and Mates capable of every operation; nor would low fevers, almost equal to the plague, rage unopposed; the surgeons of such a school would never shrink from any service of danger; our troops would no longer die in warm climates, by thousands, uncared for, and almost careless of life! What should we not save in lives, and in money the price of lives?

But you must be delighted most of all, my Lord, with the sentiments which must arise in those who remained faithful disciples of such a school. While learning, they would become enthusiasts; when advanced to higher duties, they would be worthy of being supported in a rank becoming their education; when advanced to years of experience, and well trained in those studies which their teacher had begun—they would look forward to the most honourable of all the appointments which Government could bestow on professional men, the Teaching

of the School itself. And those few who, in the course of years, from various connexions, and the thousand accidents of life, fell off into the line of private practice, would be valued in proportion to the severe education and honourable conduct of that school in which they were bred. They would be more honoured then, than they are neglected now. They would be like the children of a careful father, who said, "My sons, I have little to bestow, but you have been bred up like brothers in industry, charity, knowledge, and public virtue. These are to be your comforts, your pride, your distinction in society; and for your rewards; I hope you will so conduct yourselves, that you may look up with confidence to the gratitude of your country."

My Lord,—if I have a fear for the success of this plan, perhaps it is that of an enthusiastic but honest mind, that it will be too useful, too commanding to be endured! for even here—there is some danger in Greatness. On the first view of a plan in which other institutions will be absorbed, lesser offices annihilated, and great appointments comprehended within its sweeping circumference! what will not little men say? There is indeed one duty which I owe to this institution, which I fear I shall never perform; there is, I know, a sort of winning policy, a time-serving and flattering spirit which such movements require; there is needed infinite cunning and management, not of great objects, but of little minds.

But, my Lord, I am not a politician either by breeding or by nature. I would not strive against little arts; I hardly know the ways; I should hardly condescend to use them; I would not work upwards through interest, cabal, and petty solicitations to your Lordship's favour; I claim your protection not for myself, but for a great scheme which embraces a great public good; I would have it operate with that independent influence which becomes a great establishment, downwards from the higher powers, through all the lesser objects of arrangement, economy, policy, and energy within itself.

Once more, my Lord, allow me to express a degree of anxiety to know "how this is to received by those accustomed to judge of high matters." Let it stand or fall by itself; unconnected with me, or my little purposes, for such will be supposed—"let it be given to the wisest," my whole desire is that it may be useful. Whoever may be appointed to fulfil this plan, I shall assist him with advice, with books, with manuscripts, with drawings, with plans, heartily and honestly; without irritation, without envy, without reserve; of which promise, let this be my solemn and public pledge. It is the fortune of those who pursue medicine as an art only, to become rich, but without honour. It is the fate of those who attach themselves to science alone, to struggle with difficulties, and this, my Lord, is my condition! But such honourable difficulties I would not forsake for the ease and affluence of richer men. This was once a passion, but now it is a fixed habit of mind, in me, a second nature—indeed I am not building a ladder for myself to climb upon to some ambitious height; I am thinking, believe me, my Lord, more of others than myself. I am not fit, nor willing to be, removed from that spot where chance has rooted me. Everything rests with your Lordship. This plan is unencumbered with little designs on my part; it is submitted to your Lordship, because in so responsible and so high a station, you are, as an organ of the public mind, to judge betwixt me and that public, what degree of notice these suggestions deserve.

This is in every sense a private communication; no other copies have gone out of my hands; no great man has been solicited; no private friend has revised it; it is printed only for your Lordship's use, and to do justice to the subject; —and will you, my Lord, also condescend to receive it in this form as a mark of particular respect. JOHN BELL.

Yarmouth, January 20th, 1798.

Remarks on Gonorrhœa in the Female; on the Transmission of the Inflammation from the Uterus to the Peritonæum by the Fallopian Tubes; and on the Sterility which is the Result. By Dr. *Mercier*.

Several papers have lately been published in the French journals on the subject of the seat of gonorrhœa in the female. According to M. Gibert the favoured spot is the meatus urinarius; in 116 cases, he says, he has constantly remarked, in the first weeks of the disease, a catarrhal suppuration of the urethra; he adds, moreover, that vaginitis is rare, and that out of several hundred women whom he has examined with the speculum, he has not met with a well-marked discharge from the vagina in more than five or six. Others, however, do not appear to have been quite so unsuccessful; Ricord, after stating that he has been surprised at the frequency of the urethral discharge, which he has seen eight times at least in twelve, adds that, in the majority of cases, the affection of the vagina is more prominent than that of the urethra. M. Delmas agrees with Ricord; and M. Durand-Fardel, though he has never met with urethritis without discharge from the vulva or vagina, has often the last without the urethritis.

According to Dr. Mercier, the inflammation always commences in the mucous membrane of the vulva; the patients experiencing there a troublesome itching increased by walking, or the introduction of injection-tubes. The labia minora are usually red and swollen, and their condition easily accounts for the pain experienced in a certain number of cases on making water. After the lapse of a short period the inflammation extends to the neighbouring canals, the urethra and the vagina, and from the vagina it may extend to the mucous membrane of the uterus.

Dr. Mercier compares the course of gonorrhœa in the two sexes; in man, he says, it usually begins in the meatus urinarius, and then passes more or less deeply. If arrested before reaching the more distant parts of the canal, it first quits the parts last attacked, is limited to its original seat, and finally disappears. If, however, it gains the neck of the bladder, the case is altered; the inflammation of the neck of the bladder, and the neighbouring parts of the urethra is *très-tenace*, either on account of their functions, or of their structure, and especially on account of the presence of the prostate gland. The inflammation may then often be seen to disappear in the middle portion of the urethra, whilst it persists at the two extremities. A similar state of things, according to M. Mercier, often exists in the female organs; the inflammation occupies the entrance of the vagina and all the mucous lining of the urethra, whilst but few traces of it can be found in the intermediate parts.

If this statement be correct, there can be no difficulty in conceiving that, in the same way as inflammation of the urethra often extends to the testicles by the spermatic cord, so the inflammation of the mucous membrane of the uterus may be transmitted by the Fallopian tubes to the peritoneum. In illustration of this, Dr. Mercier relates a case of peritonitis occurring in a patient of his affected with gonorrhœa; on examination after death, the external organs of generation were found inflamed, the inflammation extending up the vagina, where it was less marked, the mucous membrane of the uterus and Fallopian tubes was of a deep red colour, and covered with puriform mucus. The peritoneum about the broad ligaments was much inflamed, and presented soft reddish false membranes, especially near the fimbriated extremities of the Fallopian tubes; in other parts it was healthy. In this case, Dr. Mercier is of opinion that the inflammation extended from the labia to the peritoneum.

It is not uncommon, he remarks, to find traces of inflammation pretty exactly limited to the free extremities of the tubes, both of which often present in the same female false membranes, without the existence of any in the intermediate parts. In a case which he had the opportunity of examining, in which a polypus

existed in the uterus, the mucous lining of this organ was found red and inflamed, and the peritoneal extremity of the Fallopian tube was seen to be adherent to the neighbouring organs. Hence he concludes that every inflammation of this membrane may be transmitted to the peritoneum by the tubes, and determine, at the point where the mucous membrane of the genital organs is continuous with the serous membrane of the abdomen, the production of false membranes. If there result an obliteration of both fimbriated extremities, sterility is the necessary consequence; but if, on the other hand, these false membranes only cause the fragments to adhere to the neighbouring parts, and prevent them from being inclined towards the ovary to receive the germ, extra-uterine pregnancy may occur.—*Revue Médicale.*

DISEASES OF THE LUNGS FROM MECHANICAL CAUSES; AND INQUIRIES INTO THE CONDITION OF THE ARTIZANS EXPOSED TO THE INHALATION OF DUST. By *G. Calvert Holland*, Esq., M. D.

IN a notice in a late number of this Review (No. 78, p. 463), of a little work, "The Vital Statistics of Sheffield," by the same author, we spoke of the injurious effects produced on the health by the inhalation of the gritty and metallic particles evolved in the process of grinding; we shall therefore content ourselves at present with an account of a plan, certainly simple, and which is said to be equal to the thorough correction of the evil.

"A wooden funnel, from ten to twelve inches square, is placed a little above the surface of the revolving stone, on the side the farthest from the grinder, and this funnel terminates in a channel immediately under the surface of the floor; *or we may consider the channel simply as the continuation of the funnel*, in order to avoid any confusion in the explanation. The channel varies in length, according to the situation of the grinder, in reference to the point where it is most convenient to get quit of the dust. If we suppose that eight or ten grinders work in the same room, each has his own funnel and channel, *and they all terminate in one common channel*, the *capacity of which is perhaps twice or three times as great as each of the subordinate or branch channels.* The point where they terminate is always close to an external wall. At this point, within the general channel, a fan is placed, somewhat in form like that used in winnowing corn, and to this is attached a strap which passes upwards and over a pulley, so that whatever puts the pulley in motion, causes the fan also to revolve. The pulley is placed in connexion with the machinery which turns the stone, so that whenever the grinder adjusts his machinery to work, he necessarily sets the pulley and the fan in motion. The fan, acting at this point, whatever may be the length of any of the subordinate channels, causes a strong current to flow from the mouth of each funnel, which carries along with it all the gritty and metallic particles evolved, leaving the room in which the operations are pursued, free from any perceptible dust. When the whole apparatus is perfect and in excellent condition, the atmosphere of the place is almost as healthy as that of a drawing-room."

The expense of the construction of the apparatus, it is added, would scarcely exceed the proportion of a sovereign to each grinder. It is better that the subordinate channels should be *under* the floor, and not *above*, as they are then less liable to accidents. Dr. Holland states that, where this contrivance has been in operation for years, he has not found a single individual labouring under any pulmonary affection. He recommends the Legislature to interfere, and make it imperative on the part of the proprietor of wheels, to construct such an apparatus, and compel them to keep it in a perfect condition.

Dr. Holland deserves great credit for his exertions on behalf of the "needy knife-grinders."

GALEN ON THE HAND.

THIS little brochure is without the name of either author or publisher, and is probably a TENTAMEN MEDICUM, or written and printed for amusement and private circulation. It is curious, as showing, for the ten-thousandth time, that there is nothing new under the sun. All Charles Bell's ingenious observations on the *design* of the Almighty Architect in the construction of the human hand, have been anticipated, and more than anticipated, by the old Greek Physician and Physiologist. Galen and Bell, however, might have employed the same arguments and illustrations in the examination of every part of the human frame—nay, of every animal and vegetable structure on the surface of the earth, and in the waters under the earth. Where we can look around, above, or below, without seeing and acknowledging the "works of an Almighty hand." MAN, it is true, as the last and most perfect piece of mechanism, offers the most obvious and striking proofs of benevolent design and consummate skill. Man has not the swiftness of the horse—the teeth, claws, or power of the lion—the horns of the bull—the tusks of the boar, the might, the destructive jaws, and the almost impenetrable hide of the crocodile. He is born naked and defenceless; but he has a brain to devise, and a hand to execute all kinds of weapons, snares, and armour, by which he subdues the most ferocious animal that treads the earth—brings down the feathered tribes that wing the air—and hauls up on dry land the monsters of the deep for his use or sustenance. But, although the human hand is admirably adapted for the construction of everything that is useful, ornamental, and destructive, it is only an instrument, after all, and would never have given him the dominion over other animals, had it not been for REASON, by which he is distinguished from the other inhabitants of the globe. Galen observes, in opposition to Anaxagoras, that man has a hand *because* he is the wisest of animals—and not that he is the wisest, *because* he has a hand. The monkey has a hand nearly as well adapted for manipulation as that of the human species; but he has not the brain to give that hand its full scope of action. The following extract may afford a sample of the close reasoning of the Old Greek.

"It appears to be the best constructed of all prehensile organs. Forasmuch as the hand can form a circle round a sphere, grasping it on every side, it also as securely and firmly holds the straight and concave: which, if it be so, it can grasp all forms, for they are all formed from three figures, convex, concave, and straight. But, since many bodies are too bulky for one hand, nature has given a second, an auxiliary to the other: that each grasping opposite sides, should not hold it less securely than one very large hand. For this reason they are placed opposite each other, (for they are formed for mutual use,) and are in every respect equal: for they are the same organs, and have similar duties. Consider the largest body a man can grasp with both hands, as a tree, or a stone; and again, the smallest thing perceptible, as a grain, a hair, or a thorn; and then how great a number of bodies intervening between the largest and the smallest; you will find man grasping all these, as if the hand had been formed for each. Man seizes the least bodies with the tips of two fingers, the index and the thumb, (which we Greeks call megan,) and bodies a little larger with the thumb and the same finger, but not with the tips; for bodies still larger he employs three, viz. the fore, the middle, and the thumb; and if the body be still greater, he uses three fingers and the thumb, then all four with the thumb; afterwards he seizes with the whole hand; and finally he seizes with both hands. It would have been impossible to perform any of these actions, if the hand had not been divided into variously-formed fingers. Nor is it sufficient they should be simply divided; for suppose the thumb had not been placed opposite the four fingers, but all five placed in the same line, is it not plain the number would have been use-

less? For to grasp securely, it is necessary either that the whole body be encircled on every side, or wholly grasped on the two opposite sides. This power could not have existed, if all the fingers had been placed in the same straight line."

But let not MAN be too proud of his brain and his hand! If these have invented and constructed so many implements and articles for the protection, comfort, and luxury of his species, they have not been inactive in evil doings. The same hand that elaborated the power-loom and the steam-engine, founded also the cannon and the cutlass for the destruction of human beings! The same hand that wields the pen in the cause of religion, morality, science and literature, directs the same instrument in the dissemination of Atheism, vice, and sedition. The same hand that forged the ploughshare and spade to cultivate the soil and call forth bread, forged also the manacles and chains by which the SLAVE is dragged from his native land, and imprisoned in the dark Peruvian or Siberian mine—or scorched beneath a tropical sun in hopeless captivity! In fine, it is very doubtful whether MAN has more reason to be proud than ashamed of his boasted hand.

MÉMOIRE SUR L'EMPLOI DU CARBONATE D'AMMONIAQUE DANS LA SCARLATINE, &c. Par le *Docteur Rieken.*

Dr. Rieken on the Employment of Carbonate of Ammonia in Scarlatina.

DR. RIEKEN is a Belgian physician of very considerable reputation, and appears to have seen a great deal of the disease on which he writes. Although the cases in which he has himself employed carbonate of ammonia and other ammoniacal preparations are not very numerous, yet, as extracts are given from the works of most authors of all countries who have made use of this medicine, the work is one of much interest, and the conclusions drawn of considerable value.

It would appear that there have been some epidemics of scarlatina in which the administration of ammonia, joined to a suitable hygienic regimen, has proved of the greatest service. Such were the epidemics, apparently of a malignant form, mentioned by Peart, Strahl, and Bodenius. At the same time, it must be borne in mind, that Bodenius attaches much importance to the maintenance of pure air in the chamber of the patient, sponging with vinegar, &c. In other epidemics of scarlatina, such as that observed by the German physicians at St. Petersburgh, ammonia was employed without success, or at least without any remarkable degree of success.

It is in that form of scarlatina, called nervous, that the employment of carbonate of ammonia, according to the observations of Roesch, Stoeber, and of Schlesier, has been followed by the most happy results. In inflammatory scarlatina, and especially in that which is accompanied by cerebral symptoms, carbonate of ammonia is of considerable service; but its use should be preceded or accompanied by the employment of a more or less energetic antiphlogistic treatment, such as bleeding, leeches, neutral, and purgative salts, and especially calomel, cold fomentations and lotions, &c. In the gastric form of scarlatina, the internal administration of ammonia has not been attended with much benefit, but it seems frequently to contribute to the cure of the patients when used in the form of lotion.

Withering and Schlesier consider that gargles, into the composition of which liquid ammonia enters, act to a certain extent as a prophylactic against scarlatina; frictions also have been found useful in the consecutive dropsy as well as in the secondary swellings of the parotids.

The dose of the medicine varies, of course, according to the age of the child. Dr. Rieken recommends that from one to two drachms of carbonate of am-

monia should be dissolved in six ounces of distilled water, with a little syrup. Of this form one to four drachms may be given every hour or every second hour, according to the urgency of the case.

The remedy should not be administered after all imminent danger has disappeared. The immoderate and prolonged employment of it may give rise to very serious consequences. Mitscherlich, who has had considerable experience as to the effects of these salts upon the animal organism, states that all the preparations of ammonia employed internally form in the stomach and in the small intestines a great quantity of mucosities. The preparations are absorbed, and from this absorption there results a change in the blood, which consists in the blood coagulating much more slowly and in less quantity than in the natural condition.

These preparations have a specific effect upon the small intestines. In all the experiments in which ammoniacal preparations were introduced into wounds, but little change was discovered in the stomach, whilst the small intestines were much affected. The duodenum and the lower portion of these intestines presented less change than the upper and middle portions. This alteration of structure was joined to a considerable accumulation of blood in the vessels. The peristaltic movement of the intestinal canal was never abolished even in those cases in which the destruction of the intestines was very considerable; though in the cases of poisoning produced by salts of lead and copper, the peristaltic action is altogether annihilated. Hence M. Mitscherlich concludes that the muscles and nerves of the intestinal canal are in no degree interrupted in their functions by these salts; the cause of death must be sought for in some change in the composition of the blood.

With regard to the properties of carbonate of ammonia, to which the salutary effects of this medicine are to be attributed, much difference of opinion exists; the hypothesis adopted by our author is that of Bodenius, who considers that carbonate of ammonia acts partly by its fixed, partly by its volatile principles. The first, when employed in continued doses, enters into the mass of the blood and ameliorates its *crasis;* whilst the volatile principle removes the state of depression existing in the nervous system. The reasons advanced in favour of this explanation by our author, are as nearly as possible these.

1. The symptoms by which scarlatina, especially the malignant form, is accompanied, the frightful quickness with which it often destroys life, and the rapidity with which the decomposition of the dead body takes place, all these circumstances are in accordance with the opinion advanced by Bodenius and others; viz. that there exists in scarlatina an intoxication of the blood, and that the action of this poisoned blood upon the brain and nervous system, produces the symptoms of scarlatina, especially of the malignant kind.

2. The experiments made by Heidenreich induce us to believe that, in scarlatina, a free alkali is in fact eliminated from the body and deposited upon the skin. It is, moreover, probable that this alkali is of an ammoniacal nature, since Heim has found the odour of the perspiration of scarlatina patients analogous to that which is exhaled from old cellars, and Wendt does not hesitate to say that this perspiration gives out an ammoniacal odour.

3. The experiments of Mitscherlich prove that ammoniacal preparations produce changes in the condition of the blood; and this, acting upon the brain and spinal marrow, causes, according to this author, changes in these organs which, though unknown at present, may occasion death.

4. Now if there are in scarlatina changes in the condition of the blood which act in an injurious manner upon the brain and nervous system; if these changes consist in the fact that, by the introduction of the scarlatina virus, an alteration is effected in the ammonia which is found in the normal condition in the body and especially in the blood of man, and that this ammonia is even in part eliminated from the body in scarlatina; if it is moreover proved that ammonia produces

changes in the blood which again cause other changes in the brain and spinal marrow; it cannot be denied that there is no medicine more fit than ammonia as well to restore to the blood the ammoniacal particles which it had lost in consequence of the scarlatinous affection, as to remove the consequences injurious to life, which are the result.

Such is the reasoning of Dr. Rieken, ingenious rather than conclusive. In this country did we give ammonia at all, it would be in the typhoid form of the disease. Depletion is always dangerous.

On the Parasitic Vegetable Structures found growing in Living Animals. By *John Hughes Bennett*, M.D. Edinburgh.

In the Comptes Rendus des Séances de l'Academie des Sciences for July and August, 1841, M. Gruby has inserted some observations regarding the crusts of *Tinea favosa*, or *Porrigo lupinosa* according to Bateman, for the purpose of establishing a more complete diagnosis of this disease than had previously existed. For this purpose, he had recourse to the microscope. By means of this instrument he ascertained—1st, that *Tinea* consists in the aggregation of millions of mycodermatous plants. These are formed of articulated filaments of a diameter from $\frac{1}{1000}$ to $\frac{1}{350}$ of a millimetre; they spring from an amorphous mass of which the periphery of each capsule of tinea is composed, and give off towards its centre oblong or round homogeneous corpuscles, which are the reproductive spores. The longitudinal diameter of these corpuscles is from $\frac{1}{300}$ to $\frac{1}{100}$ of a millimetre, and the transverse is from $\frac{1}{300}$ to $\frac{1}{150}$. The cells of the tubes sometimes contain small round transparent molecules, of a diameter varying from $\frac{1}{10000}$ to $\frac{1}{1000}$ of a millimetre. The seat of these vegetations he ascertained to be in the cells of the epidermis. The true skin is compressed, not destroyed; and the bulbs and roots of the hairs are only secondarily affected. The disc of the capsule, which is not at the commencement perforated, opens by a small hole in the centre. This enlarges, and the plants push through it, so that, at a more advanced period, instead of there being a central depression in the capsule, there is a convexity, and its edges disappear. M. Gruby inoculated 30 phanerogamous plants, 24 silk-worms, 6 reptiles, 4 birds, and 8 mammifera, but only induced the disease once, and then in a plant. The human arm was inoculated five times, but, independent of a slight inflammation and suppuration, no effect was produced. Dr. Bennett some time after examined the crusts on the head of a boy who laboured under the disease, and immediately detected the cylindrical and ramified appearances described by M. Gruby. Dr. Bennett, on continuing his observations still further, satisfied himself that pustules are not essential to the disease, though frequently present. Hence will appear the error of classifying the *Porrigo lupinosa* among the Pustulæ. According to Dr. Bennett, desquamation of the cuticle always precedes the development of the disease. Dr. Bennett made several observations in order to ascertain the correctness of M. Gruby's statement, viz. that the plants grow in the substance of the epidermis. He found that the entire inferior surface of the capsule is formed of epidermic scales, thickly matted together. These are lined by an amorphous, finely-granulated matter, from which the plants appear to spring. Superiorly, however, the epidermic scales are not so dense. These observations indicate the probable mode in which these plants are deposited on the scalp. We have seen that the appearance of the peculiar porrigo capsule was preceded by a desquamation of the cuticle. Hence, it is more probable, that the matters, from which the vegetations are developed, insinuate themselves between the crevices, and under the portion of epidermis thus partially separated, than that they spring up originally below, or in the substance of the cuticle. Dr. Bennett failed, as did also M. Gruby, in communicating the disease to other individuals, or from one

part of the same individual to another, although it is generally conceived to be of a highly contagious nature.

Dr. Bennett mentions that he has observed crusts upon the face of a living common house mouse, similar in every respect to those which constitute the Porrigo favosa in man. The crusts were of a more irregular form, prominent in the centre, not forming distinct capsules or perforated by a hair. When examined microscopically, they presented the cylindrical tubes and sporules *en masse*, in every respect identical to those which grow on the scalp of man. It has been observed that the odour of the crusts of Porrigo favosa is similar to that of mice, which makes it not a little singular, that the mycodermatous plant, constituting this disease, should be found growing on these animals. Whether the disease be peculiar to Man and the Rodentia, is a question yet to be answered.

Cryptogamic Plant found growing in the Sputa and Lungs of a Man who laboured under Pneumo-thorax.

Dr. Bennett, in making microscopic examinations of tubercle, tuberculous sputa, and the lining membrane, observed on some occasions fragments of tubes, more or less matted together, which appeared distinctly jointed, and which led him to suppose that a vegetable structure must occasionally be developed in the matter of tubercle found in the lungs. This supposition he afterwards ascertained to be well-founded. On examining the sputa of a man in the Royal Infirmary, the most beautiful and regular vegetable structure was observed. The individual was labouring under phthisis in its last stage, with pneumo-thorax. On examing a drop of the inspissated purulent-looking matter, discharged by expectoration, with a magnifying power of 300 diameters, he could perceive long tubes, joined at regular intervals, and giving off several branches. They varied in diameter from $\frac{1}{150}$ to $\frac{1}{250}$ of a millimetre, and appeared to spring without any root from an amorphous soft mass. Interspersed amid these tubes were numerous round and oval globules, often $\frac{1}{75}$ but generally $\frac{1}{150}$ of a millimetre in diameter, which here and there assumed the form of bead-like rows. Both the jointed filaments and sporules were developed in great abundance on the sides of the spit-box containing the man's sputa, which, in this situation, were inspissated, and presented a yellowish coherent and viscous layer. Two days after, the man died, and the left lung was found studded with cavities of different sizes, some of which communicated, by fistulous openings, with the cavity of the pleura. Several of the smaller cavities were partly filled with soft tuberculous matter. On examining this matter microscopically thirty-six hours after death, exactly the same appearances presented themselves as above-described. Numerous jointed transparent tubes, were readily observed, mingled with round or oval corpuscles. Dr. Bennett has no doubt that these vegetations existed in the man's lungs during life; *first*, because they were apparent in sputa freshly expectorated, and 2dly, because they could not have reached such a state of development, as has been described, in thirty-six hours. They continued to grow and develop themselves in the tubercular matter, after the removal of the lungs from the body, as well as in the matter discharged before death by expectoration. They resembled the Penicillum glaucum of Link.

Cryptogamous Plant found growing on the skin of the Gold fish (Cyprinus auratus.)

Mr. Goodsir first examined with the microscope the vegetations found growing on the gold-fish. The fish in question was observed to be in a languishing state some time before death, and to be covered with a white efflorescence, of considerable length, which sprung chiefly from the dorsal fins and tail, and floated in the water. Some days after death Dr. Bennett examined some of the filaments microscopically. When viewed with a power of 300 diameters, two distinct structures were observed; one of them might be called cellular, the other noncellular. The cellular structure was composed of elongated cells, which varied

in thickness from $\frac{1}{100}$ to $\frac{1}{30}$ of a millimetre, presenting the appearance of long-jointed tubes. They were frequently branched, generally dichotomously. Some of the cells were empty, and seemed very transparent; others were full of granules. In most of the cells a distinct nucleus existed. Some contained two nuclei. The nuclei were generally placed at the proximal end of the cell, from which came off sometimes two other cells, more rarely three.

With respect to the substance from which this jointed structure arose, it seemed to be an amorphous mass, composed of very minute granules almost identical with the matter found in the capsules of the Porrigo, and tubercular cavities formerly described.

Facts observed by various Authors connected with the Growth of Parasitic Vegetables in Living Animals.

Laurent* has observed cryptogamous vegetations in the eggs of the *Limax agrestis*, which more or less impede the development of the embryo. These vegetations arise generally from the walls of the internal tunic of the egg, ramify in the albumen, and form in it a net-work which is sometimes checked by a vigorous embryo; there is here a struggle between the vegetable and animal development. The vegetable filaments may also be seen to arise from the body of a dead embryo, or of a non-developed vitellus. *Ledermuller* noticed the fact, that on leaving dead flies in water for a certain time, plants spring from the surface of their bodies. Similar observations have been made by several others. Parasitic vegetables have also been observed on living insects. On this subject see Kirby and Spence's Entomology, Vol. iv. p. 207. The disease in silk-worms, named *Muscardine*, is characterized by the appearance after death of a white eruption on the body of the animal, which has been shown to consist of numerous cryptogamous plants. In Valentin's Repertorium, it is stated that Ehrenberg has found *Chætophora* (*Tremella*) *meteorica* growing on the scales of the *Salmo eperlanus*. Owen†, on dissecting a flamingo, observed a green vegetable mould or mucor, growing on the lining membrane of tubercular cavities in the lungs, and on that of the smaller ramification of the bronchial tubes. Thus, he says, *Entophyta* exist in animals, as well as *Entozoa*. ENDES DESLONGCHAMPS noticed a similar appearance growing in an albuminous layer, which was effused on the membranous lining of the air-passages in an eider duck. SERRURIER and ROUSSEAU mention having seen a vegetable mould in a hind (*Cervus Axis*). With this exception, and that of the mouse above alluded to, parasitic vegetations amongst the mammalia have hitherto only been found growing in man. Schönlein of Berlin was the first to recognise and figure a vegetable structure in the crusts formed on the scalp, in the disease named *Porrigo lupinosa*, by Bateman. Gruby of Vienna has given the most perfect description of these vegetations. Langenbeck, observed a high degree of fungous development in the body of a man who died of typhus. It extended from the amygdalæ and upper part of the pharynx through the œsophagus to the cardio. Meynier, of Orleans, has put forth the opinion that warts in man are true *gymnosporanges*, and that other human diseases are equally due to the development of cryptogamous diseases. Eschricht, of Copenhagen, states that vegetations sometimes exist in apthæ.

We shall now state the *conclusions deduced from* the facts just detailed. The first is, "that these vegetations always arise in living animals previously diseased; 2d, that their presence indicates great depression of the vital powers and impairment of the nutritive functions; 3d, that the peculiar constitution favourable to their growth is the tubercular or scrofulous in the mammalia, birds, or fishes, and most probably in reptiles and insects: and 4th, that the therapeutic

* L'Institut, Tom. vii. p. 229.
† Philosophical Magazine, 1833. Vol. ii. p. 71.

indications are—1, to invigorate the system, and 2, to apply locally such applications as tend to destroy vegetable life. Dr. Bennett has found more than once a vegetable structure in the black deposit, which collects on the teeth and gums of individuals in the last stage of typhus."—(*Transactions of the Royal Society of Edinburgh*, Vol. XV., Part II.)

PATHOLOGICAL AND HISTOROLOGICAL RESEARCHES ON INFLAMMATION OF THE NERVOUS CENTRES. By *John Hughes Bennett*, M. D.

DR. BENNETT states that, for the last twelve months, he has neglected no opportunity that presented itself of examining microscopically the brain and spinal canal. Some of the results of his researches are recorded in this little work. Thirty-three cases are related in which softening of some part of the brain or spinal cord was discovered; these cases are highly interesting in themselves, and rendered still more so by the valuable and practical remarks appended to most of them. It is, however, to the conclusions at which Dr. Bennett arrives that we must confine ourselves in this notice.

ON THE NATURE OF SOFTENINGS OF THE NERVOUS CENTRES.

Much uncertainty exists with regard to the nature of the softenings so often met with. Dr. Bennett is of opinion that two kinds of cerebral and spinal softening exist, an inflammatory and a non-inflammatory, which may always be distinguished from each other by means of the microscope.

1. *Character of Inflammatory Softening.*—On examining under the microscope a portion of inflamed and softened nervous tissue, in addition to the normal, tubular, and granular structure, there will be found, 1st, exudation granules coating the vessels, or floating loose, either isolated or in the form of masses; 2dly, exudation corpuscles, with distinct cell-walls, and sometimes nucleated. The more pultaceous and diffluent the softening is, the more numerous are the granules and corpuscles. The nervous tubes and normal structures also then become more and more broken down. With regard to the *nature* of inflammatory softening, it appears to result from the active growth, development, and breaking-down of nucleated cells (exudation corpuscles) in the effused blood plasma. "It is not a mere maceration of the textures in serum. No doubt the serum performs an essential part in the process, inasmuch as moisture is necessary for every species of growth. But we are of opinion that softening cannot be considered as dependent on inflammation without the existence of these bodies. So far from being connected, as some have supposed, with diminished nutrition, it is, in point of fact, an increased nutrition in the excess of blood plasma effused."

2. *Character of Non-inflammatory Softening.*—Here the cylindrical and varicose tubes of the part are found more soft and easily separable from each other. They have more or less lost their natural firmness and consistence; are readily torn across; the varicosities are easily enlarged by pressure, and, when separated or broken off, assume a globular form. The tubes also are more or less broken down. No exudation granules, masses or corpuscles can be detected.

The causes of non-inflammatory softening are four in number: 1st, mechanical violence in exposing the nervous centres; 2d, a mechanical breaking up of the nervous tissue, by hæmorrhagic extravasations, either in mass or infiltrated

in small isolated points, constituting capillary apoplexy; 3d, the mere imbibition of effused serum, which loosens the connexion between the nervous tubes, and diminishes the consistence of the nervous tissue; 4th, the process of putrefaction.

Some authors have endeavoured to distinguish inflammatory from non-inflammatory softening, by the presence in the former of a zone of red vessels, or of purulent matter; this distinction, however, according to Bennett, is not a valid one, inasmuch as, according to his observations, the zone of red vessels is very rarely met with in inflammatory softening, and the infiltration of purulent matter has no real existence. The opinions which attribute softening to a lesion *sui generis*, to diminution of nutrition, to gangrene, obstruction of arteries, &c. are also considered hypothetical in the highest degree.

The symptoms which accompany the two forms of softening differ widely. In twenty-four observations, in which cerebral softening was discovered, exudation corpuscles existed in eighteen, in the other six no traces of these bodies could be found. In four, however, out of the eighteen cases of inflammatory softening, there also existed in another part of the brain non-inflammatory softening. In the fourteen cases of simple inflammatory softening, well-marked symptoms invariably existed, such as loss of consciousness, preceded or followed by dulness of intellect, contraction and rigidity of the extremities, or paralysis.

In three of the six cases of simple non-inflammatory softening, there was a large extravasation into one side of the brain, followed by sudden coma and hemiplegia. In the fourth and fifth cases there was sudden loss of consciousness, with convulsions, but no paralysis or contraction, and on dissection capillary apoplexy, with central softening, was found. In the sixth case, with extensive softening without effusion of blood, there was no disturbance of intellect, no contraction, no paralysis. Dr. Bennett considers that the softening arose from mechanical destruction of the tissue in the first three cases, and from post-mortem action in the three last.

Of the four cases in which both kinds of softening existed, in the first there was hemiplegia of the left side only. Softening was found in both corpora striata, but exudation corpuscles only in the right, the side opposite to the paralysis. In the second case there was impaired intelligence, loss of speech, disorganization of the eye, and convulsions before death; there was no paralysis. Abscesses surrounded by inflammatory softening were found in the external portion of the left anterior and middle cerebral lobes, explaining the symptoms present; but there was also non-inflammatory softening of the central parts of the brain producing no symptoms whatever. In the third case there was paralysis of both arms, contraction of the right, and tetanic spasms of the muscles of the mouth and neck. Inflammatory softening existed in the pons varolii, extending more to the left side; non-inflammatory softening of the right corpus striatum. In the fourth case there was headache, prominence of the eyeball, and coma, but no paralysis. A fungoid tumor was found at the base of the orbit, and an abscess in the anterior lobe of the brain, surrounded by inflammatory softening. There was also central yellow softening of the left hemisphere producing no symptoms.

Dr. Bennett considers that much of the obscurity which attaches to inflammation of the nervous centres arises from the fact that pathologists have hitherto confounded softening dependent on inflammation, with softening occasioned by post-mortem changes or mechanical violence, and, consequently, have been astonished to discover extensive softening after death, no corresponding symptoms having existed during life; on the other hand, where well-marked symptoms have been present, nothing has been discovered after death, though inflammation actually existed, capable of demonstration by the microscope alone, which shows the presence of exudation corpuscles.

Dr. Bennett next proceeds to make some remarks on the colour of softenings; the general relation between the symptoms and the seat of the lesion; on con-

traction of the limbs as a symptom of inflammatory softening; on the curability of softening; and on the connexion between softening and hæmorrhage.

1. *Colour of Cerebral and Spinal Softenings.*—Softening may be tinged red, yellow, white, or gray, without, however, any essential difference as to structure. As a general rule, it would appear that the red may be considered as acute, the yellow subacute, and the white or gray chronic softening; but this is by no means invariable.

The red and yellow colour is evidently connected with the presence of blood or its colouring matter. Sometimes the yellow softening is contained within the reddened portion, and somewhat resembles a purulent collection. At others, it surrounds the extravasation of blood, as is most common. Some have supposed that purulent infiltration is the cause of yellow softening, but such does not agree with the observations of Dr. Bennett, who has never met with a pus corpuscle in softened brain or spinal marrow.

In the fawn-coloured softenings, which are frequently observed independent of extravasated blood, the author has always found exudation corpuscles, and thinks it very probable that the fawn tint is attributable to the presence of these bodies, which are usually of a brownish or blackish colour.

White softenings are generally non-inflammatory; in some cases, however, they contain numerous exudation corpuscles, which are then colourless.

2. *General Relation between the Symptoms and the Seat of the Inflammatory Softening.*—In ten cases examined by Dr. Bennett, lesions of the central parts of the brain on one side were discovered; the symptoms during life consisted of contraction or paralysis of the extremities on the side opposite to the disease. In six cases there were lesions of the central parts on both sides; symptoms during life, contraction or paralysis on both sides of the body. In four cases, lesions of the peripheral parts only existed; this group was characterized by the absence of paralysis or contraction of the extremities, and by either delirium or coma. This analysis, it will be seen, is favourable to the hypothesis which ascribes motion and sensation to the central parts, intelligence to the surface.

3. *Contraction of the Limbs in Inflammatory Softening, and in Hæmorrhage.*—Some dispute has taken place as to the presence of more or less contraction or rigidity of the limbs in inflammatory softening, some authors contending that it is a highly-characteristic symptom, others asserting that its presence, when it does occur, is altogether incidental. Dr. Bennett is of opinion that, in idiopathic inflammatory softening of the brain, contraction in one or more limbs is a common symptom. In *simple* hæmorrhage into the brain, on the other hand, without the existence of any inflammation, contraction seldom, if ever, occurs.

4. *The Curability of Cerebral and Spinal Softenings.*—Though numerous observations have fully demonstrated the possibility of this occurrence, Dr. Bennett considers that the anatomical marks or appearances, by means of which pathologists have endeavoured to demonstrate the fact, are very fallacious. "The slight indurations occasionally met with in the nervous substance are spoken of by some authors as *cicatrices*—a term, we think, wholly inapplicable to them. Durand-Fardel alludes to the softening resembling chalky milk as a proof of the passage of the lesion into a state of cure, and Dr. Sims speaks of the fawn-coloured cavities as evincing the same fact." In one case of hemiplegia of long standing, in which the chalky milk softening was found, the granules of the exudation corpuscles were seen to be large, equal in size, and very transparent, in fact presenting a very unusual appearance; it is not improbable, therefore, that the granules were undergoing absorption; and consequently the opinion of Durand-Fardel may be correct. On the other hand, the appearances described

by Dr. Sims were met with in one case, but here, on the application of the microscope, numerous exudation corpuscles and granules were met with, precisely similar to those seen in parts undoubtedly affected with acute inflammation. Intense rigidity of the opposite side of the body also existed, without any other lesion than this which could at all account for it. Dr. Bennett's opinion therefore is, that the fawn-coloured spots described by Dr. Sims are no evidence of the cure of inflammatory softening.

5. *The Connexion between Softening and Hæmorrhage.*—It has long been a question, does the hæmorrhage precede and cause the softening, or does the softening ever precede and induce the hæmorrhage? In three cases related, hæmorrhage took place suddenly, producing hemiplegia, and death within a few hours; surrounding the coagulum the cerebral structure was softened, but apparently only mechanically, and no exudation corpuscles were found. In two other cases, with the same symptoms, death took place respectively in seven days and five weeks. Here the surrounding cerebral structure was softened, and numerous exudation corpuscles were discovered. Thus it would appear necessary for a certain time to elapse before the hæmorrhage can produce the inflammation. On examining the mode of accession also, there is no reason for supposing that softening preceded the hæmorrhage. In seven out of eight cases the attack was sudden, and in the eighth, where headache had existed for some time, this was evidently congestive, and the softening contained no exudation corpuscles or granules.

With regard to the character of the softening that frequently surrounds apoplectic clots or sanguineous infiltration, Durand-Fardel asserts, that if the softening extend beyond the limits of the infiltration, if redness surround it, and if enough blood be not infiltrated to have mechanically produced a diminution of consistence, then the affection is inflammatory. If, on the other hand, the softening is slight, its extent limited, if there be an adhesion of the meninges, and if the surrounding parts appear healthy, then the affection is simply sanguineous infiltration. With these distinctions, however, our author is not disposed to agree; two cases are brought forward, in one of which the appearances first mentioned were presented, whilst the second resembled what is described as simple infiltration. In neither case could any corpuscles or granules be discovered.

At this point Dr. Bennett pauses, promising however to renew the inquiry at some future period. The subject is one of the highest interest, and the observations of the author are deserving of the utmost attention.

FACTS AND OBSERVATIONS RELATIVE TO THE INFLUENCE OF MANUFACTURES UPON HEALTH AND LIFE. By *Daniel Noble*, Esq.

THIS little pamphlet is in point of fact devoted entirely to the consideration of the sanatory influence of the cotton manufacture. It is well known that, some years ago, a Committee of the House of Commons was appointed to inquire into what is called the "factory system." The medical evidence on that occasion was decidedly unfavourable; the general impression being that factory employment tended to produce diseases of the character and class ordinarily comprehended under the term scrofula; as impaired digestion, nervous debility, glandular disease, stunted growth, pulmonary consumption, &c. But to this evidence Mr. Noble objects that it was given principally by metropolitan practitioners who were necessarily ignorant of the actual working of the system, and who only speak of the effects of factory labour as it was represented to them; such repre-

sentation being highly exaggerated with respect to the severity and hardship endured.

In 1835, a work, the Philosophy of Manufactures, was brought out by Dr. Ure, who took a very different view to that adopted by the Factory Commission, and one much more pleasing to the great cotton manufacturers. Unfortunately, however, it proved too much; not only was the ventilation of the mills highly superior—the temperature genial—the space for the workmen ample; not only was the factory system *not* prejudicial to health, and *not* tending to the development of scrofulous disease, but, on the contrary, it was actually preservative of the former, and, to some extent, curative of the latter. Nay more, according to Dr. Ure, at the time when the cholera was raging in England, the only class of persons that enjoyed immunity from the attack consisted of those employed in the cotton factories. Agricultural pursuits, though usually considered more healthy than employment in towns, ranked only secondarily in a sanatory point of view. In fact, after perusing the work, no one could doubt that the favourite residence of the Goddess of Health is a cotton-mill.

In 1840 was published the report of M. Villermé, who had been commissioned by the Academy of Moral and Political Sciences to inquire into the condition of the working classes. The report was, on the whole, favourable as regards the manufacture of cotton. Only one class in this branch of manufactures is reported to be unfavourably situated in a sanatory point of view, viz. the *batters of cotton*, whose occupation necessitates the inhalation of much dust and flue. These men complain of dryness in the mouth and throat, and are seized sooner or later with a cough gradually increasing in severity. This cough is the first symptom of a slow and formidable disease of the chest, which is always relieved on abandoning the work, and altogether cured at its commencement, if the employment be not resumed. The disease in its progress assumes all the characteristics of consumption.

Mr. Noble takes a middle course between the opinions of Dr. Ure on the one hand, and of the Factory Commission on the other. He cannot deny that the health of those engaged in factory-labour is more or less impaired, but he conceives that the great mass of disease which prevails in the manufacturing districts comes rather from the *great-town* than from the *factory* system. That is, although the position of the factory-operative is unfavourable to health and longevity, yet it differs but little, if at all, in this respect, from that of other classes of work-people who are exposed to the same injurious influences, such as the want of exercise, the crowding and imperfect ventilation of their residences, &c., excluding the effects, whatever they may be, which flow especially from the factory system. The Registration-returns demonstrate that, in this country, a densely-populated district is less favourable to life than one but thinly inhabited. Hence Mr. Noble contends, that the high mortality of manufacturing Manchester, as compared to agricultural Rutlandshire, (the average age of death among mechanics, labourers, &c. being in Manchester 17, in Rutlandshire 38,) is owing not to the existence of the manufactures, but to the circumstance of the people being densely congregated. And, in support of this argument, he adduces the return of the mortality in Bethnal Green, a compact and thickly-populated part of the metropolis, but in which no factories exist; the average age of death of mechanics, labourers, &c. here, is 16! In Liverpool, the average age of death of the same class of persons is stated to be 15!

In the last chapter Mr. Noble considers in detail the specific ills which are said to result from the atmosphere of cotton-mills.

1st. *Acceleration of Puberty in the Female.*—This charge was probably founded on the idea, that the period at which maturity occurs in the female depends on the temperature of the place of habitation. This idea would however appear,

from the researches of Mr. Roberton,* to be incorrect. Mr. Noble, from ample experience among factories, entertains the fullest conviction that this charge, at any rate, is unfounded.

2. *Bony Distortion.*—From a paper read at one of the meetings of the British Association, it appeared that the cases of distortion in 640 factory children were 8, or $1\frac{1}{4}$ per cent. This average, it will be seen, is by no means high.

3. *Pulmonary Consumption.*—According to the Census of 1831, there were ascertained to be resident in Manchester and Salford 49,892 families; the number of deaths registered in 1839, amounted to 9,223, of which 1,454 are recorded as having been from consumption This is at the rate of about 3 deaths annually from consumption to every 100 families, and of $15\frac{3}{4}$ per cent. of the deaths from all causes. From this it appears undoubtedly that consumption is exceedingly prevalent in these districts, for if we take Essex, an agricultural county, we find the cases of consumption to be not quite 2 annually, for every 100 families. But if we look at the proportion of deaths from consumption to those from other causes, we find it to be in Essex, 19 per cent, in the factory district only 16 per cent. In fact, with the exception of the Metropolis, Manchester has fewer deaths from consumption in proportion to the total number of deaths than most of the large towns, or even of the agricultural districts.

Mr. Noble has attempted to distinguish among the deaths from consumption that occur in Manchester, those that take place among the factory population; but we cannot say that we attach the slightest importance to his calculations, as they are entirely founded upon suppositions, and are, to say the least, much more likely to be wrong than right.

OBSERVATIONS ON PNEUMONIA AND ITS CONSEQUENCES. Read before the Physical Society of Guy's Hospital. By *Thomas Addison*, M. D. (Condensed from the Guy's Hospital Reports.)

THE object of this paper is to direct the attention of practitioners to a few points connected with the pathology, diagnosis, varieties and effects of Pneumonia. Dr. A. first considers that form of the disease which has been termed *Simple Pneumonia*, expressing some doubts, however, whether what has been so called is really the simplest form of the disease. Simple pneumonia is said to be characterized by certain symptoms, as fever, dyspnœa, pain of chest, and peculiar expectoration. The existence of cases, however, has been admitted in which these symptoms have been either entirely absent, or very ill-defined; in such cases, the disease has been termed *latent pneumonia*, and when marked, *typhoid pneumonia*. The general impression is that, whenever pneumonia occurs in young and robust constitutions, these symptoms must be present. This opinion is at variance with Dr. Addison's experience; he considers, in fact, that the simple pneumonia of Laennec and others is by no means the simplest form of the disease, but a complication, a *broncho-pneumonia*; the truly simple pneumonia occasionally occurring in young persons and in good constitutions, unattended by any of the above-named symptoms. With respect to the *seat* of pneumonia considerable diversity of opinion has existed and even still exists; some asserting it to be the so-called parenchyma of the lung; while others, and among them Dr. Addison, will have it that pneumonia has its original and essential seat in the air-cells of

* Med. Chir. Review, Oct. 1843.

the lungs, and that the ordinary pneumonic deposits are poured into these cells, and not into an interstitial tissue or parenchyma, of which structure he professes himself unable to find a single trace. With respect to the nature of the elementary tissues composing the air-cells* of the lungs, and the exact construction and arrangement of these cells, he has been unable to arrive at any positive conclusion—he is fully persuaded, however, that *pathologically* they present none of the attributes of a mucous membrane; and if the pathological change induced in any tissue constitutes a legitimate foundation for any opinion respecting the physiological character of that tissue, one is almost irresistably led to the conclusion that the air-cells of the lungs are a mere modification of areolar tissue, or of a serous membrane. The effect which immediately succeeds the earliest stage of pneumonic inflammation wherein there is supposed to be a preternatural dryness of the air-cells from an arrest of their natural secretions—an effect, too, which is usually the first recognised by physical signs, being the so-called state of engorgement, seems most strongly to countenance the belief in the serous character of the air-cells. This effect consists in the effusion of serum into the cavities of the cells themselves. In this stage, together with a highly vascular condition of the cells, the cells are found to be denser to the feel than natural; subsequently the turgid parietes of the cells lose their natural cohesion, swell, and, encroaching on the cavities of the cells, cause the absorption of the effused serum, and, by thus filling up these cavities, occasion, first a brittlenes, and afterwards the consolidation which constitutes red hepatization—a consolidation depending not on an effusion of solid albuminous matter into the cells, but on the great vascularity, softness, and tumefaction of the cells, themselves.

The subsequent changes produced by inflammation consist not only in a loss of cohesion and more or less tumefaction of the inflamed tissue, but in a remarkable disposition in that tissue to return to a state more or less resembling that which forms the original base of all tissues; viz. an albuminous material. This reconversion of a tissue into albumen, Dr. A. calls *albuminization*—hence, as the inflammation proceeds, the parietes of the cells become more opaque; the minute vessels are no longer visible; the parietes of the cells become thickened and softened, so that the cells now admit of an albuminous matter being poured into their cavities. This constitutes the gray hepatization of authors. When the inflammation occurs in good constitutions, this albuminous matter may be more or less solid; when, however, it attacks a bad constitution and assumes an atonic form, the albuminous effusion is more fluid, and may be readily forced out by gentle pressure, or by pricking the containing cells. These changes may, in any state of constitution, take place in a considerable extent of pulmonary tissue, obliterating or concealing the lobes of common cellular membrane, separating one lobule from another. In other cases, however, and especially in certain atonic forms of pneumonia, these changes are confined to individual lobules, more or less remote from each other, the common cell-membrane forms a distinct boundary to the inflammation—this is called *lobular pneumonia*. It has been long remarked that acute pneumonia very rarely terminates in abscess; and in atonic inflammation attacking bad constitutions, though abscesses are not quite so rare, they are exceedingly small and regularly scattered through the inflamed part. Grangrene, more especially in its diffuse form, is acknowledged to be still more rare; when it does occur in this form, it appears to be closely allied to sloughing; there is another form of gangrene, called circumscribed gangrene; this appears to be the result of pulmonary apoplexy. *Lobular pneumonia*, as abovementioned, is for the most part observed in cachectic habits of body, and especially towards the termination of various chronic diseases, after surgical

* For the latest information on this subject see a Paper by Mr. (not Doctor) Addison, in the Philosophical Transactions for 1842, Part 2.—*Rev.*

operations, and in phlebitis. The abscess in such cases is sometimes of considerable size—very complete and very rapidly formed, attributable, no doubt, to the rapid exhaustion of the vital properties of the inflamed tissue.

There is another form of consolidation of the lung, called by Laennec *carnification*, which is generally regarded as the result of pneumonic inflammation, modified by pleuritic effusion. Dr. Addison cannot subscribe to this opinion; he feels satisfied that it results from pleuritic effusion having compressed the lung, forced out the air, and thus brought the sides of the cells into close contact; he does not, however, deny that it may be occasionally blended with pneumonic inflammation and its consequences.

Dr. Addison now comes to consider the remote consequences of pneumonia. The *permanent* effects produced in a lung by pneumonia depend chiefly on the state of the patient's constitution, and the character of the inflammation, and consequently on the nature of the albuminous deposits, as also on the degree of organization of which such deposit is susceptible. Of these effects he lays down three varieties: 1. *The uniform albuminous induration.* 2. *The granular induration.* 3. *The gray induration.*

When acute pneumonia occurs in good constitutions, the softened tissues become so assimilated to the permanent albuminous deposit, that the whole is converted into a uniform homogeneous material, in which there is not the slightest trace of either the aerial cellular structure, or of the common interlobular cellular membrane. This may be either diffused over several lobules; or, what is more rare, it may be confined to one or a very few only. This, the least frequent of the permanent pneumonic indurations, he calls *uniform albuminous induraration.*

When, again, the inflammation pours out a less organizable albumen, as happens in strumous habits, the change produced is very different. Here, in general, the interlobular cellular tissue remains perfectly distinct; a solid, pale, or yellowish and friable albuminous matter occupies the lobules; and this without having assimilated the parietes of the cells. The cellular arrangement is still perceptible; whilst on cutting the lobule we find the friable albuminous matter presenting the granular aspect produced by the filling up of still separate cells. This constitutes the *granular induration.* It resembles in its appearance ordinary tuberculous matter; whence it is sometimes called *inflammatory tubercle.*

The *gray variety* of pneumonic induration is next considered: this morbid change differs from the uniform albuminous induration in the albuminization of the tissues being much less complete—from the granular induration it differs in the albuminous deposit being of a more plastic or organizable kind; in short, the pneumonic inflammation may be said, in this case, to have terminated in adhesion; some assert that this gray or black induration of the lung results from chronic pneumonia. As the morbid changes now described have been indiscriminately considered as forms of tubercular infiltration, it may be asked, what proof have we of their inflammatory origin. To this Dr. Addison replies, 1st. That we occasionally have proofs of a previous attack of acute inflammation within the chest. 2d. They are uniformly accompanied by evidences of former inflammation; viz. old deposit on the pleura immediately above the affected portion of the lung; adhesion between the pleuræ in that situation, &c. 3d. They are generally found in the middle and inferior lobes of the lung; and, lastly, the total absence, in many instances, of a vestige of tubercle in other parts of the lung. Dr. Addison now adverts to the question regarding the relation which exists bewhen pneumonic deposits and tubercle—whether tubercle be uniformly and necessarily the result of a process of inflammation; or if not, whether it is so in any, and in what instances. Without pretending to remove the difficulties in which this subject is still involved, he proceeds to to state the conclusions to which he has been led by his inquiries and experiments.

He first notices the general resemblance observed to exist between the effects of tubercular disease occurring in serous membranes, and those met with in the lungs; the several forms, changes, and varieties presented by the one being almost equally observable in the other. The earliest and simplest form of tubercular disease in a serous membrane consists of a minute, roundish, semi-transparent projection, hard to the touch and very tenacious; in like manner, the earliest and simplest form presented by tubercles in the lungs is that of minute gray semi-transparent hard bodies, inseparably attached to the parietes of the air-cells of the lungs, in the same manner as the small tubercles are incorporated with the peritoneum. Neither in the case of the peritoneum, nor in that of the lung do we at this early stage discover the slightest trace of inflammatory action. Yet we know from abundant facts that the peritoneum, when once tuberculated, is very liable to inflammation; the effects of which are opacity, thickening, and contraction of the membrane; in the lungs we find a state very similar to this. In certain lobules, or in a single lobule, we find a cluster of tubercles, presenting now a more dull or opaque appearance; this change is followed by a decided attempt at contraction or puckering of the affected lobule from a cause probably similar to that in the peritoneum. (For the very minute description of the morbid changes which take place in the tubercular deposits in the lung and in the serous membranes, we beg to refer the reader to the original paper.)

Independently of the arrest of secretion said to attend the onset of inflammation in every structure, the ordinary morbid changes immediately produced by pneumonia are, 1st. An effusion into the air-cells of serum, more or less highly charged with albumen in solution: 2. A molecular change in the inflamed tissue, characterized by more or less opacity and loss of cohesion. 3. A deposition of albumen into the cells, either solid and organizable, or fluid and puriform. 4. Total albuminization of the tissues, either in the form of a material susceptible of organization, or of a material unsusceptible of organization, and thence forming an abscess. On the other hand, the salutary or reparatory changes are, 1. Absorption of the effused serum. 2. Such a change in the molecular condition of the tissue as restores to it its natural cohesion, and its transparency. 3. Organization of the effused albuminous matter, with consequent contraction and induration of the tissues into which it is effused, or absorption of the albuminous effusion, if puriform. 4. Organization of the albuminized tissue, when susceptible of that change; or the formation of a cyst to circumscribe the abscess, when the conversion is of the puriform kind. The immediate morbid changes produced by ordinary pneumonia and by phthisical disease are the same, with the exception of the albumen, whether effused, or resulting from albuminization of the tissues, being much more susceptible of organization, and consequently more likely to become permanent in the former than in the latter; whereas, the reparatory changes are less complete, and less permanent in phthisis than in pneumonia. Hence, according to Dr. Addison, the uniform albuminous induration can scarcely ever be said to have occurred in strongly-marked phthisical disease, whilst the granular induration may be said to form a connecting link between phthisical disease and ordinary pneumonia. The gray induration in phthisical subjects is much less firm, much less permanent, and generally soon softens down into a vomica or abscess; so that, as we speak of scrofulous peritonitis, we may, in designating tubercular phthisis, call it scrofulous pneumonia. A plausible objection has been made to the inflammatory origin of tubercular disease, viz. that it most frequently takes place in the apices of the lungs, whereas the reverse holds good in reference to pneumonia. As a set off against this objection, Dr. A. says that, in his own experience, on examining the lungs of individuals who have died of disease not affecting the chest at all, he has found indications of partial inflammation much more frequently towards the apices, than in the lower portions of the lungs. Partial pleuritic adhesion and pneumonic changes, in his experience, are more frequently met in the former than in the

latter situation. This, he conceives, may go some way to account for the earlier development of tubercular disease in the former than in the latter situation. The several morbid structures or deposits that have been alluded to in this paper maintain their integrity by a very slender power; the degree of vital influence which holds their molecules in a solid state, being impaired or destroyed by very slight disturbing causes; the most common of these causes being inflammation set up in the surrounding parts, and a cachectic habit of body, but more especially these two causes occurring in the same individual. Under these circumstances, those structures and deposits soften down, and are gradually converted into an albuminous or puriform fluid, and thus give rise to the symptoms of phthisis.

(As we are promised a continuation of this very interesting paper, we shall discontinue our analysis for the present to resume it when the paper shall have been completed.)

MINOR SURGERY; OR HINTS ON THE EVERY-DAY DUTIES OF THE SURGEON. By *Henry H. Smith*, M.D. &c. Illustrated by Engravings. Philadelphia; Ed. Barrington and Geo. D. Haswell. 1843.

MINOR Surgery is in practice MAJOR Surgery, reversing the scholastic axiom that omne majus in se continet minus. For every surgeon and every practitioner has a great deal of the minus and very little, perhaps none, of the majus. A man may prepare himself to tie aneurysms, amputate limbs, trephine crania, in fact perform human vivisections on a large scale, and never get a patient on whom to flash his knife. The very same man may not think it worth his while to learn how to bandage, dress, and treat those common cases which form the great bulk of the highest practice, and the whole of the practice of most people. What is the consequence? Daily ignorance, mortification, and loss, or, at all events, not gain, of reputation.

We wish our students could be induced to think of these matters. They are caught by glare, and run after the great operations. The unobtrusive treatment of disease has little charm for them—the out-patients of Hospitals, and the patients of Dispensaries are neglected—they *would* be Clines and Coopers, and they do not make themselves good practitioners.

Such books as those before us are calculated to meet this crying evil. Its author informs us.—

"The shortness of the period usually allotted to a course of lectures on Surgery, and the rapidity with which the lecturer is obliged to pass over the methods of Dressing and the Minor Surgical Operations, has left a deficit in the amount of knowledge required for daily practice, which every one commencing has more or less severely felt. With a view of filling up this, as well as in compliance with the repeated requests of several members of his class, the author has been induced to undertake the present work, not in the expectation of being able to offer anything new or original on a subject which has so long engaged more or less of the attention of every one, but with the hope that he might afford a concise and methodical system of Minor Surgery."

And a capital little book it is. Surgical authors have been freely laid under contribution—wood-cuts in profusion (not *quite* equal to Bagg's) illustrate the text, and stand for it—bandages are drawn with reckless prodigality—fingers and thumbs occupy every conceivable position—there is a history of *cravats* which would puzzle Beau Brummell—and diagrams which even shew us how to cut a strip of sticking plaister, and put a leech in a glass.

And all this is as it should be. Little matters are the sum of professional, as of private life, and its comfort and happiness are mixed up with their management, be it right or wrong. Minor Surgery, then, we repeat, is really Major Surgery, and anything which teaches it is worth having. So we cordially recommend this little book of Dr. Smith's.

Spirit of the Foreign Periodicals.

M. ANDRAL ON PATHOLOGICAL HEMATOLOGY.

HEMATOLOGY, or that branch of medical science which is devoted to the study of the blood in the conditions of health and in disease, is by no means a creation of the present age. It is exactly a century ago since *Thomas Schwenke* published, under the very appellation now used, a treatise on this subject. M. *Andral*, with all the dignified impartiality which has ever characterised his conduct as a scientific man, has, at the commencement of his recent Essay, pointed out the most important labours of his predecessors in this interesting department of physiological research, and at the same time, he distinctly disclaims for himself all merit as to either the originality or the completeness of his present inquiries.

The time is not far distant when the question as to the alterations of the Blood was almost entirely overlooked by medical writers, or at most was alluded to only in a casual and very superficial manner. One party in medical literature having their attention absorbed with the speculations of a mysterious Vitalism, were willing to accord only a very subordinate importance to all organic lesions, whether of the fluids or of the solids of the body; and thus it was that, in general, they became the more prolific of theoretical explanations of disease just in proportion as their ignorance of facts was the greatest. Another party erred quite as much by going an extravagant length in the very opposite direction; viz. by attaching an undue importance to every appreciable (however faintly this might be) lesion or alteration of structure, to be found on post-mortem examinations. Both these parties or schools regarded with equal indifference and neglect the problems of a Humoral Pathology. Even the very appearance of the blood, drawn in venæsection, was seldom noticed with any degree of precision; it was rather the result of a mere professional habit, than with any definite object of inquiry, that the buffy condition of the blood drawn was observed and recorded; and, although some of the terms of the old Humoral school were still retained in medical language, its doctrines and tenets were never mentioned but with ridicule and contempt. Many of our readers will perhaps be led, by these passing remarks, to recall to their minds the shadows of their early studies, and the lineaments of their first preceptors.

* * * * *

The absolute necessity of bringing to the very foremost ground, in all pathological inquiries, the exploration of the Solids of the body, of the Fluids which penetrate and permeate these, and of the vital forces to which both are alike subjected, has been insisted upon from the most remote antiquity; and medical men are now beginning to perceive that it is only upon the triple foundation of an exact and discriminating Solidism, Humorism, and Vitalism, that any truly sound system of pathology can ever be established. The crying sin of the ancient Humoral Doctrine consisted rather in its systematic usurpation of the totality of a science, one part only of which it could justly claim, than in the fanciful and erroneous hypotheses of which it was the parent source. The aim and object of the pathologist in these days seemed to have been, not so much the discovery of the various alterations induced by disease in the physical and chemical characters of the Fluids, as a fanciful explanation of the hidden mechanism of living bodies, and of the etiology of disease—not unfrequently by means of very forced analogies and suppositious resemblances.

The most ancient doctrine was, that the human body is composed of a few elementary or simple constituents, the abnormal conditions and irregular com-

binations of which formed, as it were, the key of every system of Pathogeny. This was the general view of medical science for many centuries. There was a difference of opinion, indeed, in different ages—according to the partial discoveries of a rudimentary chemistry—as to the nature of the elements in question; but the doctrine in all was essentially and fundamentally the same. The four elements of the Galenic pathology, were, in course of time, replaced by the three—mercury, sulphur, and salt—of the Paracelsian; but, in either cases, the foundation of the etiological reasoning was of the same erroneous character.

For several centuries, the advances and discoveries of chemistry served only to give rise to new and fanciful theories, and vague generalisations of disease. Acidity and alkalinity of the fluids were long the *Shibboleth* and watchwords of the schools; and, although these terms have been long banished from medical literature, there seems to be a manifest tendency, in the present age, to a re-adoption (in a modified form indeed) of the dogmas which they serve to designate. It is certainly curious to observe, that almost every medico-chemical theory which has at any time been advanced, is found on examination to contain a certain *modicum* of truth—often blended indeed with no inconsiderable portion of error;—and also, that very rarely has any such theory been propounded, without encountering more or less opposition. *Robert Boyle* was a strenuous opponent of the medico-chemical doctrines of his day; *Sydenham* expressly protested against the 'new inventions of the chemists;' and later still, *Bordeu* made a very vigorous and unsparing assault upon what he deemed the errors of his cotemporaries in this department of pathological research. Taking a position midway between the extremes either way—of excessive admiration on the one hand, and undue disparagement on the other—*Haller* was led to enunciate that truly philosophic remark, which M. *Andral* has selected for the motto of his brochure:—*Non ideo analyses sanguinis utilitate suâ destituuntur, dum sapienter noverimus spes nostras recidere, neque plura nocere quam a naturâ discimus.*

The Microscope was not more fortunate in its result at first than the instruments of Chemistry; for the early discoveries, effected by its *means*, seemed only to open a new field to fanciful speculation. The presence of globules in the blood being once distinctly ascertained by its aid, there arose immediately the pathological sect—of which *Boerhaave* was the head—that endeavoured to found an etiological creed upon certain assumed data respecting the relative size of the blood-globules, and the calibre of the capillary vessels.

* * * * *

M. *Andral*, carefully avoiding the errors of his predecessors, alike in the chemical and in the microscopic fields of pathogenic inquiry, has applied his enlightened mind to the investigation of the more obvious changes, which the blood is found to exhibit in the course of many classes of disease. He has pointed out with great judgment the numerous sources of fallacy which are apt to mislead the inexperienced in their hematological researches. We may mention one example.

It has been too commonly imagined that the blood of different tribes of animals presents nearly the same characters. This is not so. What is normal in one species is a sign and token of morbid alteration in another. The buffy coat very generally indicates the existence of inflammation in the blood of man; whereas, with a little management on the part of the veterinary phlebotomist, this phenomenon may be made to appear at any time on the blood of the horse. In the same animal species, the different elements of the blood may vary a good deal within certain limits, without there being of a necessity any diseased action present in the system at the time; and this too, in consequence not only of peculiarities of individual organisation, but also of the kind of food on which the animal has been fed, as well as the treatment to which it has been previously subjected, and so-forth.

We need scarcely say that it is most necessary to be perfectly well acquainted

with the physical characters of the blood in a state of health, before any person can undertake to examine with advantage the changes to which this fluid is liable during the progress of diseased action. Numerous mistakes have been committed from ignorance of the normal characters. The globules of a *framboisé* aspect have, on more than one occasion, been mistaken for globules altered by disease, or in the course of gradual destruction. M. *Andral* has shewn that the said globules are produced by the precipitation of white corpuscles around others of a red colour; and the researches, which have led him to adopt this conclusion, tend to evolve a general principle, that the blood, if examined just as it flows from a divided vessel, exhibits at first insulated white corpuscles, and afterwards a number of red globules which have an appearance that he describes as *framboisé et festonné;* but that, if it is deprived of all its fibrine before its spontaneous coagulation, it ceases to present this phenomenon under the microscope. From this circumstance, therefore, we may infer that the presence of fibrine is necessary for the development of white corpuscles in a drop of blood.

M. *Andral* arranges, under three heads, the abnormal changes of the blood that are discoverable by the microscope and chemical analysis. Under the *first* he describes those changes which consist in an alteration of the relative proportions of the component parts of the blood; the *second* comprises the modifications of these component parts in respect of their qualities and physical properties; and the *third*, those that are referrible to the formation of new principles which are not present in the normal condition of the fluid. It is the first only of these three categories that M. *Andral* has hitherto been able to investigate with any degree of completeness; and he is still occupied with prosecuting his inquiries on this subject, respecting the changes in the relative proportions of the globules, fibrine, and the solid contents of the serum. We cannot indeed praise too highly the sage caution evinced by our distinguished countryman in publishing his observations, before they have been well elaborated and satisfactorily established. There are so many ardent spirits now a days ready to produce complete treatises (!) on subjects which they have scarcely done more than skim, that we cannot but deem it fortunate for science when a high authority, like M. *Andral*, sets so conspicuous an example of patient reserve and laborious accuracy.

In a series of most interesting chapters, we have presented before us a description of the changes of the blood in the Pyrexiæ and the Phlegmasiæ, in Anæmia, in Dropsy, in Hæmorrhages, and in the various Neuroses, as well as in a good many Organic Diseases. Already most of the facts, consigned in the pages of this truly important essay, are recognised as established truths in medicine, and circulate as axioms of classic truth in the doctrine of the schools. Within the course of a few months they have received universal verification; and no one can dispute that they have contributed in a very extraordinary degree, to popularize the examination of the blood, and to regulate the results which this means of analysis is calculated to produce in clinical experience.

In this respect, M. *Andral* has not only opened up a field of most curious research, and established the intimate analogy that may be traced between the data furnished by chemical and microscopic examination on the one hand, and those of clinical experience on the other; but he has also exercised a salutary influence on general therapeutics and practical medicine.

At the commencement of every disease, the blood may exhibit one of two modifications in the condition of its globules; these may be either in abnormal excess or deficiency. The one stage belongs to Plethora, and the other to Anæmia: in the former, there is a *plus*, while in the latter there is a *minus*, in the relative proportion of this important element of the circulating fluid. These few words contain in substance the initial rule of all sound practice;—not that M. *Andral* has the merit of its discovery; for all that he has done is simply to have *proved* by a series of incontrovertible and indisputable facts what has been often said as to the force of constitution in different patients, under the operation of

the same disease. To replace a *banality* in medical inquiries by a precise and positive formula, is to confer a service not only on science, but also on suffering humanity.

Does not the mere enunciation of the simple fact, that it is much more easy to deprive the blood of its globules than to regenerate them after they have been lost, set an obvious inviolable limit to depletions of blood? and does it not equally reduce to their just value all the exaggerated hopes of hygienic organoplasty? Again, how important is the fact that the numerous forms of the Pyrexiæ—including typhoid fever, although this disease certainly does not exhibit in all its stages a pyrexial character—may be developed without any necessary change in the proportion of the red globules, *while that of the fibrine is never above the normal standard.* This last character alone serves to draw a broad line of demarcation between the genuine Pyrexiæ and the febrile Phlegmasiæ, in which the blood invariably contains a larger proportion than usual of fibrine.

Now, if it is proved that sanguineous depletion forms the most appropriate remedy for the latter class of diseases, will any one venture to say as much for it in the Pyrexiæ, in which there is certainly not the same hematological character? and does not the examination of the blood furnish us with a most valuable and decisive means of ascertaining the existence of genuine inflammation in the course of a Fever?

Then again, the knowledge too of the many anomalous functional disorders, so often attendant upon Anæmia, is one of the most important and difficult points of medical practice; when once acquired, it will often serve to guide the physician in some of the most perplexing circumstances of clinical experience.

It is impossible to read, without the most lively interest, all that M. *Andral* has written on the state of the blood in Cancer, Phthisis pulmonalis, and other organic diseases. His experience does not at all confirm the doctrines of the self-called physiological sect, in reference to the development of tubercles. How can we for a moment suppose that Tuberculization is a mere inflammatory process, when the blood in a patient affected with it is known to exhibit that peculiar alteration, which is essentially characteristic of debility and want of tone! The patient is, in short, in a state of incipient anæmia, and his blood resembles that of a person who has been largely and repeatedly bled. The proportion of the fibrine is found to increase in the course of Phthisis and Cancer, *only* when the tuberculous and cancerous matter has reached the stage of softening or destruction.

In the Neuroses, the proportion of red globules is generally very considerably diminished below the normal standard. This result is strictly in accordance with the therapeutic treatment—viz. the use of tonics—that is most serviceable in such maladies.

The rectifications, which the work of M. *Andral* is so well calculated to establish, indicate a decided movement in favour of the doctrines of medical science, such as it existed before the epoch of the physiological school. The Chloroses, Anemiæ, and Neuroses now resume in the nosological series their place, that was so long usurped by chronic Gastritis, and a host of other subacute irritations; the family of eruptive and other Fevers is separated from that of the genuine Inflammations; and a wide line of distinction is drawn between these and the extensive and varied group of organic or structural degenerations.

If, therefore, a decided reaction in medical doctrine has ensued, it may justly be considered as the offspring of the numerous facts, that have been discovered and established by the aid of chemistry and microscopic research.

The more that true science advances, the more distinctly do we perceive that its highest achievements consist rather in an accurate knowledge of the varying conditions of actual phenomena, than in the factitious unity and assumed simplicity of any one doctrine, however ingenious and plausible this may appear to be.—*Gazette Medicale.*

RESEARCHES ON THE TRANSMISSION OF HYDATIDS BY CONTAGION.

Professor *Klencke* of Brunswick, to whom reference was made in the last number of this Journal, (article on Structural and Formative Anatomy,) is the author of the following curious and important observations. They form, in their extended condition, the preliminary chapter to a work which the ingenious author proposes to publish forthwith.

Before narrating the experiments which he has performed with the view of showing that hydatids may be propagated by transmission from one animal to another, and by their direct ingestion with the food or otherwise into the bodies of living bodies, he describes at some length the various entozoary productions which pass under the generic appellation of Hydatid. The following summary presents the most interesting details of his narrative.

1. *False* or *Spurious Hydatid:* it might be more correctly called *cellula hydropica subindi-viduata.* I have often found it in the brain and the spinal marrow. It essentially consists in the abnormal development of a cellule, which becomes charged with fluid, in consequence of the loss of balance between the powers of exhalation and assimilation. Floating in this fluid, a few globules are often faintly discoverable. Within the primary cellule, other smaller cellules—usually four in number—become developed in course of time; and each of these cellules constitutes a new being or animalcule, which has an independent existence.

2. *Acephalocyst.*—We have no longer to do with simple cellules, which become isolated from the rest of the organism, but with an organised zoological being. They are veritable animals, which have their own peculiar generation. The genuine Acephalocyst is of rare occurrence; most of the cases related by authors belong properly to the preceding species—the false or spurious variety—of Hydatid. The Acephalocyst is a closed vesicle, having a peculiar opaline colour, and varying in size from that of a millet-seed to that of an ordinary pea. The vesicle consists of two membranes, the inner one of which is lined with villosities, which float in the fluid contained within. In the centre of the larger Acephalocysts, there is found a cheesy-like substance which, when examined with a strongly magnifying power, is perceived to consist of numerous minute cellules conglomerated together: these are sometimes seen to exhibit molecular movements under the microscope. The analogy between their structure, and that of the ovaries in different animals, made me suspect that there must be an analogy of function also; and the correctness of this suspicion has been amply confirmed by my subsequent experiments of inoculation with Hydatids. The ovules or microscopic cellules probably escape from the parent cyst by a rupture of the enveloping membranes of the latter. In some instances, the central cheesy matter becomes so indurated that it attains the consistence of plaster or even of ivory: this change may probably be regarded as the result of disease in the entozoary animalculæ.

3. *Echinococcus*—This parasite is in the form of an antique urn or pear, inclosed in a cyst which is filled with a clear fluid, that is sometimes of a yellowish hue. Its inner surface is found on examination to be sprinkled over with numerous minute corpuscles, which exhibit, under the microscope, a distinctly ampullar form. Some of these float freely about in the fluid, while others are attached to the inner surface of the vesicle—which in the Echinococcus is much thinner than in the Acephalocyst. One extremity of this Entozoon terminates in a disc, furnished with a circle of arms or tentacula, which may be expanded and contracted at will.

4. *Polycephalous Hydatid* or *Cocnurus.*—This remarkable species consists of

irregular vesicles which have several heads, the larger or smaller size of which indicates the different phases of the evolution of the animal. The vesicles may be regarded as so many polypes, each head representing a distinct individual being. As a single vesicle is found to exhibit young, as well as adult, *cænuri*, we are enabled at once to recognise the process of their development. The parent vesicle often presents the appearance of one or more contractions or divisions *par etranglement*—each separate portion probably becoming, in course of time, a distinct animal. The vesicle is in the shape of a leather bag or bottle; the upper or cephalic extremity of which can open and shut at pleasure, while its inferior terminates in a cul-de-sac. * * * * * *

From various considerations I am induced to believe that the polycephalous Hydatids are propagated in two ways; viz. by buds, evolved from their inner surface, and by fission of the parent vesicle; in other words, by gemmiparous and by fissiparous generation. The vesicle must, therefore, have the power of generating or reproducing, at every point of its surface, buds, or new growths, that ere long become capable of an independent existence.

5. *Cysticercus*.—The animalcules of this family are usually of a conical shape, formed in some sort by a cervix and a vesicular body. Within the latter, are to be perceived striæ of minute diaphanous corpuscles, which are in structure analogous to that of the vitreous humour, and in all probability are the ovules of the animal. These corpuscles are sometimes observable on the outer surface also of the parent vesicle.

* * * * *

As Hydatids have been met with in all the tissues of the body, it becomes important to ascertain whether the different species seem to occupy certain tissues in preference to others. As a general remark it may be stated that most of them have been discovered in various organs of the body. As far as we know at present, the only species, whose *habitat* is very much restricted, is the Polycephalous entozoon, which has hitherto not been found in any other part except the Brain. This organ, however, may be the seat of three other species of Hydatidic animalculæ: the Acephalocyst being regarded as the primary or rudimentary form of the Echinococcus. The false or spurious Hydatid is of most frequent occurrence in the Brain. This simplest form of entozoary production cannot properly be considered as an independent animal existence, which has been introduced into the body from without: most probably it is generated in, and evolved from, the tissue wherein it grows.* I have viewed them, says Dr. K , as cellules detached from the rest of the organism, and possessing a sort of semi-independent vitality. This form of Hydatid may be considered as an abnormally amplified organic cell, which continues to follow in its development a different course from that of the regular or normal cells. Once in possession of its individuality, a crop of new vesicles (*blastidies*) resembling the parent one, is often rapidly developed. Although foreign to the adjacent tissues, these hydatids are certainly not so much so as the genuine parasitic entozoa—a circumstance that may perhaps account for the little or no inconvenience that is often experienced during their development. Indeed the only symptoms, that usually accompany their formation in a part, are those attributable to compression. They have been discovered in almost every part of the nervous centres—the substance of both hemispheres, the fornix, the optic thalami, the ventricles, the pons Varoli, between the arachnoid and the brain, &c. It is rare that they are ever agglomerated within one common envelope; usually they are scattered as

* This is the view which Mr. *Owen*, in his recent treatise on the Anatomy of Invertebrated Animals, has taken of this question. We may refer our readers to the Review of his work in our last number.

single vesicles, or in small groups. The symptom, that most commonly attends the presence of false or spurious Hydatids, is a dull *constant* pain in the part: whereas the pain that accompanies the presence of true Hydatids is generally more or less distinctly *periodic.* (?) The only lesion, produced in the surrounding cerebral substance, is a partial atrophy, proportionate to the size of the cell or cells, and consequently to the amount of pressure that has been thereby produced.

* * * * *

With respect to the Etiology of Hydatids, it may be stated that many pathologists have ascribed their formation to the influence of outward injuries, to the suppression of gout or of any discharge to which the system has been long accustomed, &c. It seems not all improbable that such may be the case with the production of *false* Hydatids; seeing that these causes must obviously tend to promote the disaggregation of certain cellules, the one from the other: but we cannot well admit the same explanation with respect to the *true* kind—the development of which is, in our opinion, always owing to the direct introduction from without of the ovules or germs of the entozoon, and to their subsequent fixation, so to speak, in those parts of the body where they can find a proper *nidus* for their growth. As to the former or spurious Hydatid, it is by no means necessary that it be met with in different parts of the body at the same time; whereas this is very generally the case with respect to the latter species.

* * * * *

The Acephalocysts have been, as we have already said, very generally confounded with the false Hydatids. They are often found in the Brain. It sometimes happens that a cluster of these animals is enveloped in one cyst, with which however, they seem to have no immediate connexion. They either float about in the contained fluid, or they sink down in a cluster to the most depending part of the bag. The co existence of Acephalocysts in the brain, and of Echinococci in the liver, is by no means an unfrequent phenomenon: in such a case, the liver is to be regarded as the primary focus of the morbid production. It certainly seems more than probable that the development of Hydatids within the brain is, in very numerous instances, subsequent to their appearance in other organs of the body.

The polycephalous Hydatid—the presence of which gives rise to the disease known, in the case of herbivorous animals, by the name of the *staggers*—is occasionally met with in the human brain, also, producing a somewhat similar train of symptoms. The Cysticercus has likewise been found in this organ, and especially in the choroid Plexus, in the human subject. According to my observations, whenever this Hydatid is present in the Brain, it is simultaneously co-existent in other organs—in which it is usually in a higher and more advanced stage of development.

* * * * *

With respect to the etiology, or the spontaneous development of genuine Hydatids, is there any source or place of abode, we may inquire, without the organism, for the ovules of these entozoary animalcules? They are widely diffused, being found in numerous animals of different sorts; none of them is peculiar to the human species alone. They are transmissible from one creature to another, and may therefore be considered as a living contagious principle, (*contagium animatum.*) It has, moreover, been observed, that they are not unfrequently voided with the excrements; and no one can now doubt that not only the flesh, but also the blood, the urine, milk, and menstrual fluid, &c. often contain them.

The Transmissibility of Hydatids.

The following experiments serve to throw considerable light on this hitherto unexplored department of pathological investigation: first of the *false Hydatids*

Experiment 1.—Some tepid water, that contained a number of these hydatids collected from a human brain, was injected into the abdominal cavity of several puppies and kittens. After the lapse of three months, the parietal peritoneum was found to adhere to the Epiploon at the seat of, and around, the puncture that had been made with the trocar, and there were numerous false hydatids existing in the neighbourhood of the cicatrix. In one of the kittens, a mass of these productions was found on the peritoneal covering of the urinary bladder, projecting into the cavity of the abdomen.

Experiment 2.—A cluster of these vesicles, which were of the size of grains of sand, was injected into the left femoral vein of a young kid. At the same time I mixed a number of them with the milk that was given to a kitten. At the end of three weeks, one of my assistants found in the fæces of the latter animal distinct hydatidiform cellules: I had often looked for them myself, but never could discover any. Six weeks after the date of the experiments, both animals were opened. In the kid there was found in the right (?) groin a hydatidic tumor containing several *cysticerci*:—these might possibly have been introduced in another manner. No trace of any Hydatids was discoverable in the heart or large blood-vessels; but, in the apex of the right lung, I found a largish tubercle, in which, amid the debris of pulmonary cells, there existed óne large vesicle, on which there was observable a filiform network all covered over with very minute hydatids. These were given to a sparrow. The excrements of the bird were carefully examined every day, but no trace of the animalcules could be seen. On examining, however, the abdominal viscera, a week afterwards, there was found around the pancreas a mucous mass, which contained several hydatids that were of the same kind as those which the animal had swallowed.

Experiment 3.—A number of small hydatidic cells, taken from the brain of a human subject, were inserted into the orbit of an old fowl. At the end of the 13th week after the operation, the orbit was found filled with a cellular mass, which contained a large number of false hydatids. These were all injected into the femoral vein of a young cat. On dissection, three or four weeks subsequently, there was found in the cavity of the heart, and especially at the right auriculo-ventricular orifice, a fibrino-gelatinous mass, which contained an innumerable quantity of false hydatids.

Exceedingly common in the human subject, this kind of Entozoa is much more rare in the bodies of the lower animals.

With respect to the Acephalocysts and Echinococci, I have found the former in the milk of the cow; and, floating besides them in the whey, many of the minute ovules which are met with in the body of these animalcules. On the other hand, it is a matter of almost daily occurrence to discover both these sorts of hydatids in the flesh and blood of different animals.

Dr. *Klencke* has performed several experiments to determine the action of recent gastric juice upon hydatidic animalcules. When pure, it speedily destroyed all traces of life; but, when diluted with water, it seemed to effect only a partial change in their appearance.*

* * * * *

With respect to the propagation and diffusion of the various forms of Hyda-

* It would seem, from the result of one experiment, that the Acephalocysts and Echinococci may become, under certain circumstances, transformed and degenerated into a lower and simple form of structure, viz. that of mere vesicles. The following short extract is interesting in more points of view than one. "Two Echinococci, that had been immersed in diluted gastric juice, were introduced under the skin of the abdomen of a dog and allowed to remain there for

tidic Animalcules, Dr. K. observes: "As there are continually dying numerous animals whose bodies contain very many Acephalocysts and Echinococci, and as these are eaten by other animals, and the refuse discharged by the excrements, we may readily understand that there must always be a vast number of these beings in the external world—whether in the state of ovules, or in that of individuals more or less completely developed. These individuals, when they are admitted into the human intestinal canal, may become fixed and attached by means of their sharp extremities, and subsequently they may work out a passage for themselves from the bowels into the substance of the different tissues. On this principle, we may perhaps explain how it comes to pass that, in certain localities, the Echinococci are, so to speak, endemic—in consequence of the property, which the waters of these places may have in promoting the development of their ovules. As these ovules are excessively minute; they may, when once received into the torrent of the circulation, be readily transported to any part of the body. The ceaseless movement of the blood prevents them from being stationary or fixed, so that the body of a living animal may always have a number existing in the circulation; unless, from some cause or other, they become adherent to the parietes of the vessels, or are detained in the substance of the tissues.

If it be admitted that the ovules of Hydatids may circulate along with the blood, we shall cease to wonder so much at the not unfrequent appearance of these productions after wounds and other external injuries.

The general conclusions which Dr. K. has drawn from his numerous experiments, are these:—

1. That, in all the species of Hydatidic Animals, the mode of generation is twofold, fissiparous and oviparous.
2. That there are false or spurious Hydatids, which are propagated by *blastidia.*
3. That all the different sorts of Hydatids are communicable from one organism to another; and, as they are found to exist in fluid food, and in the flesh of different animals, they may be readily transmitted by infection.
4. That the Acephalocysts are not distinct from the Echinococci; the former are only the ova of the latter, with or without the parent envelope.
5. That the current of the circulation serves to diffuse the Hydatidic Animalcules, whatever be the mode in which they have been introduced into the spstem.
6. That there exist agents in the living organism, as well us numerous substances in the Materia Medica, which are capable of acting as poisons to these parasitic productions.—*Gazette Medicale.*

---

three weeks. On then examining the part, there was found a cellular cavity, which contained a yellow serosity, in which floated the two Echinococci, 'notably modified.' They had become transformed into vesicles, the outward surface of which was covered with a multitude of buds and isolated cellules supported on short pedicles. Under the microscope, these cellules, when squeezed, were observed to give out a multitude of minute cellules, like to those which are found in the bodies of Acephalocysts, and which may be regarded as ovules. When the Hydatids were laid open, their inner surface was observed to be sprinkled over with a still greater number of buds and pediculated vesicles, while others floated in the contained fluid."

EXOPTHALMIA FROM AN HYDATID WITHIN THE ORBIT.

The case occurred in a boy, eleven years of age. The left eyeball was fairly protruded from the socket, so that the organ was only partially covered by the distended lids, whose edges, being turned inwards, kept up a constant irritation. In consequence of this exposure, the cornea had become somewhat opaque, and the impairment of vision still more considerable. The pains, which the patient experienced, seemed to be produced almost entirely by the distention and compression of the affected parts. The eyeball had become very gradually displaced; the parents of the boy having observed the deformity more or less distinctly for more than two years. The organ itself was not enlarged; and indeed it was quite obvious that the protrusion was owing to a tumor, situated at the outer side of the orbit, covered by the swollen and injected conjunctival membrane. It was firm, but elastic, to the touch; and, when pressed on, it communicated to the fingers the sensation of a fluid being contained within. I felt satisfied, therefore, that the case was one, not of a solid, but of an encysted, swelling. Moreover it could not well be of a melicoric or atheromatous nature; for it was developed at the bottom of the orbit, at a distance from any sebaceous crypts, and it had no relations of continuity except with the skin and the conjunctiva. The diagnostic question came therefore to be, was the cyst a purulent, or was it a serous, one? There had been no antecedent symptoms at any time to warrant the belief that suppuration had ever taken place in the part affected. I therefore concluded that we had to do with a serous cryst or hydatidic formation, that had become developed within the orbit; and this conclusion was a good deal confirmed in my mind by remembering a case of this, that occurred in the Clinique of the Hôtel Dieu in 1828. In that case, the tumor did not project much at the side of the orbit, so that it was at first suspected that the eyeball itself was the seat of the enlargement; and extirpation of the organ was therefore recommended and performed. On the first stroke of the bistoury, an aqueous fluid streamed out from the bottom of the orbit; the operation was continued; and, on removing the eye, an hydatid fell out on the cheek of the patient: the eyeball itself was not at all diseased. In the present instance, I determined to proceed with a good deal of caution. On cutting through the conjunctiva over the tumor, a quantity of limpid serum flowed out, and the protrusion immediately subsided very considerably. When the edges of the wound were separated, a white puckered membraniform substance was observed at the bottom of the pouch from which the fluid had escaped. On removing this with a forceps, it proved to be a solitary hydatid, which, when distended, must have been as large as a full-sized walnut. The eyeball at once retired back within the orbit, still retaining however the oblique direction outwards, which it had before. This partial squint remained, when the wound had quite healed.—*La Clinique de Marseille*.

MICROSCOPIC ENTOZOA IN THE BLOOD, STOMACH, &c.

Modern microscopists have demonstrated, beyond all doubt, the existence of living animalcules in the blood of various animals. All those, heretofore discovered, were found to belong to the genus *Filaria*. It remained to be shown whether there was not some variety in the sanguineous, as there is in the intestinal, Entozoa; and also whether the presence of such parasitic creatures should be ever regarded as a normal, or only as a pathological, phenomenon. With this twofold object in view, Mr. *Gruby* has recently devoted himself to an extensive series of researches; one curious result of which has been, to discover in the blood of frogs a new species of animalcules, as remarkable for their shape as for

their movements. They are found in the blood of the animal during the seasons of Spring and Summer. The body of this blood-Entozoon, is convoluted like an auger; hence M. *Gruby* proposes to call it *trypanosome*—τρυπανον, terebra, and σωμα, corpus. Not improbably he is mistaken on this point; as it seems more likely that the twisted appearance is owing to the writhings of the animalcule than to its natural configuration. The *Tripanosomes* are certainly not nearly so common in the blood of the frog as the Filariæ; our author did not find them in more than in two or three out of a hundred animals which he examined. They seem to be more frequent in the blood of the female than of the male animal.

These observations, taken in connexion with those of *Valentin* and *Gluge*, establish beyond all controversy the existence of different species of Entozoa in the blood of cold-blooded animals. M. *Gruby* is inclined to believe that they are not to be viewed as the result of any diseased process in the body of the frog, but that they are normally present in the blood, under certain unknown conditions of the system. But it is not in the blood only that they are found; they have been observed in the visceral cavities of the frog, and also in the bodies of other animals higher in the scale of zoological organisation.

* * * * *

Intestinal Entozoa during Digestion.

In 1685, *Leuwenhoeck* announced that he had discovered three species of microscopic animalcules in the excrements of frogs, birds, and even of man; but the truth of this statement was till of late years called in question by *Ehrenberg*. Although the perfect accuracy of the father of microscopic physiology has been now amply confirmed, no one seems ever to have suspected the existence of living animalcules in the stomach and intestinal canal during the process of digestion in the higher animals, until the recent researches of MM. *Gruby* and *Delafond*. According to the observations of these gentlemen, it would seem that there are no fewer than four different species of living microscopic animalcules discoverable in two of the stomachs—viz. the paunch and the bonnet—of ruminant animals, while the process of digestion is going on. The transparency of the enveloping membrane of these gastric Entozoa permits the observer to see the molecules of food which they draw in, and the ingestion of which renders their bodies more or less opaque at first. The number of these animals is so great, that, in five centigrammes (less than one grain) of the contents of the first and second stomachs of a sheep, there have been found at least 15 or 20 animalcules of different species, and varying too from each other in size and configuration. MM. *Gruby* and *Delafond* estimate that they constitute nearly one-fifth of the entire weight of the alimentary matter, in which they are found. In the third and fourth stomachs—viz. the manyplies and the red—the animalcules are found to be dead, and can be recognised only by their *carapace*—the enveloping or tegumentary covering of their bodies—having become quite empty and transparent. In the small and large intestines, no traces, save only some of the debris of the *carapaces*, are discoverable of the gastric Entozoa.

* * * * *

MM. *Gruby* and *Delafond* have discovered no fewer than seven different species of animalcules in the colon of the horse. If it be asked, what possibly can be the use of this ever-renewed development of animalcular life in the alimentary canal of herbivorous animals more especially, these gentlemen reply, that they serve to *animalise* the vegetable food, and fit it for becoming assimilated with the blood and solid tissues of the body. We have seen that they calculate that not less than a fifth part of the entire chymous mass becomes transformed, so to speak, into a congeries of the most-simply organised animalcules—which, being digested in their turn, are supposed to furnish a supply of animalised matter for the nutrition of the animal in whose body they exist. The food of the dog and swine being much more highly animalised, the development of digestive Entozoa is not necessary in the

same degree: hence they are much fewer in number and less varied in form in these, than in herbivorous animals.

These statements are certainly highly curious and interesting; but the question comes to be, are they altogether correct and trustworthy? There are so many sources of deception in the microscopic examination of living matter, that we must be very cautious in receiving as *proved*, the startling announcements that are every now and then brought forward.—*Gazette Medicale.*

Chemical Pathology.

The subsequent remarks may be considered rather fanciful by many readers; but they at least deserve notice, as indicating, among other events of the present day, the marked tendency that now exists to a recurrence to a Chemico-Medical system of nosological interpretation.

"It may be readily imagined that many diseases must have their cause and origin in certain anomalies or derangements in the process of the metamorphosis of *proteine* into the different elementary constituents of the body, as the albumen, the fibrine, caseine, and globuline. Sometimes it is the non-azotised, at other times it is the azotised substances, whose properties undergo such an abnormal alteration. We may take, for example, a class of diseases, which in their essential nature differ from each other, only in as far as their influence and operation are more or less widely extended over the one or the other of these elementary bases of the animal economy—we allude to that section of the nosological catalogue that comprehends such maladies as tubercles, scrofula, rickets, arthritis, and osteo-malacia. The first two of these diseases are characterised by an abnormal metamorphoeis of the azotised materials of the body. In tuberculous disease, there is an imperfect metamorphosis of the Albumen, which does not advance, so to speak, beyond the formation of Fibrine. From what we have stated on a former occasion, there is every reason to believe that it is in consequence of the union of the oxygen of the respired air with the Proteine that the constituent principles of our bodies are primarily formed. In *tuberculosis* we observe that the oxygen, from some causes hitherto undiscovered, does not so perfectly unite with the Proteine as to metamorphose it completely into an animal tissue. A somewhat similar thing occurs in *inflammation*. The oxygen, which passes into the blood, unites with only one atom of the sulphur of the albumen, and forms fibrine; and this element thus accumulates in the blood, in consequence of its not being sufficiently oxydised either to form organic structure, or to be separated by the process of excretion. Hence the fibrinous condition of the circulating fluid in the phlegmasiæ, and hence too the formation of false membranes, and other similar products. In *tuberculosis*, the blood is equally charged with non-oxydised combinations of Proteine; and, as the oxygen does not render them excretable by the usual channels, the system gets rid of them by causing their deposition in those parts of the body whose tissue is most lax and yielding. *Scrofulosis* differs from tuberculosis only in being generally a disease of childhood—the age when the plasticity of the organism is the greatest. Hence, in the former malady, there is a greater amount of imperfectly oxydised Proteine continually in requisition, so to speak; and hence, too, there is less frequently the formation of morbid deposits of this substance in the parenchymatous tissue of organs than the separation of non-azotised materials by abnormal and extraordinary outlets."

* * * * *

"Pathological observations show that the fat plays an important part in the production and continuance of many diseases. The opinion of *Liebig*, that the white and oleaginous state of the blood, which is occasionally found to exist in drunkards, is owing to an incomplete oxydation of the fat—in consequence of

the combustion of the alcohol,—appears to be rather far-fetched. Is it not more probable that it arises from the morbid state of the liver, that is so very commonly present in persons of intemperate habits? It is unquestionable that the secretion of the bile has an intimate relation with the condition of the fat of the body, so much so, that whenever the former function is inactive from induration or any other morbid lesion of the liver, the absorption of the fat in the body is invariably observed to go on very slowly. We have not unfrequently had an opportunity of observing the truth of this remark in certain cases of Phthisis; the emaciation under such circumstances being very gradual indeed, if the liver has become at all indurated. We know too that very corpulent people are usually subject to hepatic derangements; and it is a common remark that patients, recovering from Typhus fever, are apt to become unusually lusty."—*Archives de Medecine.*

On the Use of Ptisans in France.

The following very sensible observations on the use of ptisans, and on some other points in French Medical practice, are from the pen of Dr. Higgins, an English physician who has resided for upwards of 15 years in France, and who, we may therefore suppose, is tolerably well qualified to give an opinion on the subject that he discusses. They are contained in a letter recently addressed by him to the Gazette Medicale, the editor of which, while claiming the indulgence of his readers for the language of a stranger, expresses his own and their obligations for "les excellentes remarques sur la pratique des deux pays"—France and England.

Without any circumlocution, the doctor at once announces the object of his writing.

"I propose," says he, "in this letter, to attack the use of ptisans, which I regard, with but few exceptions, as utterly useless, and indeed as often positively injurious."

During the course of a disease, whether this be of an acute or a chronic nature, the ingestion of a ptisan is regarded by the French as a necessary part of therapeutic regime, and is very generally viewed rather as a direct and efficacious medicinal agent, than as a mere diluent beverage. Not a few practitioners seem to approve of the custom, without having any very distinct or well-grounded faith in the curative powers of the remedy.

The number of ptisans used in France is very considerable; and consequently it is often not a little embarrassing to the neophyte to become thoroughly acquainted with all the minutiæ of a sick chamber's regime in France.

Cross the Channel, and what a contrast!—a penury of ptisans that is really distressing. As the great *Careme* said of the English, that they had but one sauce—melted butter—so it may be truly said that they have but one ptisan—barley-water! In England the indifference of physicians, on the subject of the drink to be used by their patients, is quite as great an error as the over-concern of their French brethren on this point of practice. The English prefer the use of potent and promptly-acting remedies from the shop of the chemist; while the French choose rather to trust to time and to the simples of the herborist. Curious subject of speculation to the physiologist!—the Frenchman so mobile and vivacious in health and yet so patient in sickness; and the Englishman so phlegmatic in the one, and withal so impatient of delay in the other.

In France they make use of four sorts of ptisans—diaphoretic, diuretic, diluent, and aperitive. The *first* are used whenever it is wished to promote the cutaneous perspiration, or the eruption of an exanthematous eruption. These results are much encouraged by keeping a warm dry air around the patient's body

at the same time. The *second* are indicated when the object is to increase the flow of urine; and the *third*, when we have reason to believe that the fluids and secretions of the body are more than usually acrid: hence the utility of these latter in almost all febrile and inflammatory affections.

In my opinion, the employment of the diluent and aperitive ptisans is liable to very great abuse in French practice. How very commonly are indigestion, and, its ordinary consequence, constipation, induced by their excessive employment; and what a host of ills is comprised under these two simple words! Put Dyspepsia on one side, and every other malady of the nosological catalogue on the other, and the former will predominate in point of frequency.

The biliary secretion, like that of the other chylopoietic viscera, is invariably altered and modified, whenever the digestive process becomes deranged. Then follow either constipation or a tendency to diarrhœa, accompanied with a furred state of the tongue, an offensiveness of the breath, and a multitude of other vexatious symptoms.

Now if this state of things should result from an inflammation of any of the abdominal viscera, the treatment, every one knows, pursued by the English and French physician is very nearly the same: recourse must be had to bleeding and other depletory and antiphlogistic measures, before proceeding farther; but arrived at the delicate point of the arrest of the inflammatory action, the practitioners of the two countries will be found to diverge most widely in their practice. In France, the patient is kept for some days on diluent ptisans, before aperient medicines are administered; while in England no time is lost, but recourse is had at once to the use of purgatives, followed perhaps by that of diaphoretics.

At a period, when the Medical Constitution is inflammatory (as was the case when *Broussais*' doctrines were in the ascendant) the French practice is unquestionably to be preferred; but, in the present hygienic conditions, most unprejudiced men will prefer, I should think, that of the English physicians. Sufficient attention is not paid in the present day to the various conditions which are so frequently occuring in the *medical constitutions* of the seasons; and yet nothing is more certain than the fact of these alterations and vicissitudes.

Tempora mutantur, et nos mutamur ab illis.

At the beginning of the present century, the publication of Dr. *Hamilton's* (of Edinburgh) work on Purgatives gave rise to a very marked and important change in the medical treatment of many diseases. So satisfactory were the results then obtained by most English physicians from the judicious administration of this class of medicines that, when, a few years after, the genius of *Broussais* perceived the arrival of the Inflammatory Constitution, they refused all assent to his doctrines, and would not even give a fair trial to the treatment which he recommended.

In France, on the other hand, the new system of pathology was received with the warmest enthusiasm; the younger physicians adopting it with an almost blind credulity, and their elders finding in it a wherewithal to modify, in some respects, the practice which they had long been accustomed to pursue.

But we have now arrived at the stumbling-block of our inquiries; for it cannot be questioned by any one that is conversant with general practice that for several years past, the Inflammatory Constitution of the seasons has ceased to exist, and has been replaced by that which preceded it; viz. by one of a catarrhal and humoral character.

The French, before the time of *Broussais*, did not use purgatives to nearly the same extent as the English; and the opinions of this celebrated man contributed not a little to restrict their use still more, and to introduce the very general substitution of diluent and gently aperitive ptisans. This system—although certainly carried to the same excess in France, as that recommended by Dr. Hamilton has been in England,—produced so very favourable results for a certain

time, that the Continental physicians cannot, even yet, make up their minds to discontinue it, although the medical Constitution, which gave rise to it, has unquestionably ceased to exist—so that we may with equal justice blame the English physician of 15 or 20 years ago, and the French one of the present day, for very similar faults.

Gastritis and Gastro-enteritis are infinitely less common *now* than they were *then*; while simple gastric derangements, accompanied with a vitiated state of the secretions, are much more frequent. In short, Dyspepsia, as we have already said, is *the* disease of the present day; this is the genuine *fons et origo* of ill-health in most instances, when the patient fancies his malady is seated elsewhere; and it is for *it* that a physician is consulted in three, out of every four, cases that occur in his practice. Dyspepsia complicates almost every morbid affection, from a simple bile to grave typhus fever, from a mere scratch to the most important surgical operation.

In such a case, if the Broussaian practice be adopted, the patient will be kept on the sick list for two, three, or more weeks, whereas one or two doses of a brisk purgative might have relieved him in as many days. So much for adhering to a mode of treatment, while the medical Constitution (which at first demanded its use) has passed away. Among the leading physicians in the French metropolis, there has been, for some years past, a manifest secession from the Broussaian creed; most of them begin to recognise the advent of another reign, without however having entirely rid themselves of all their former prejudices.

Whenever, indeed, we have reason to believe that a genuine Phlegmasia of the stomach or intestines does exist, we should certainly trust to local bleeding and the use of cataplasms and emollient ptisans, avoiding the use of purgatives, until the inflammatory symptoms have subsided. But then comes the question, how are we to determine this period precisely?—here is a point on which the English and French physicians are greatly at issue. The one is for temporising and delay; the other is for prompt action. The one is afraid of rekindling the smothered excitement, and of being obliged again to have recourse to depletory measures; the other, well aware of the immense relief generally experienced by a free evacuation of the bowels, is impatient to administer his favourite remedies. Twenty years ago, the English physician unquestionably carried the purgative treatment to an injudicious length; but, since that time, the doctrines and precepts of the Broussaian school have taught him to be more discriminating in his practice.

I must confess that I have never been able to understand the reason of the great aversion of French practitioners from the use of brisk purgatives. Often after the application of leeches, cataplasms, and emollient ptisans for days, or even weeks at a time, and when these means have quite failed in giving decided relief to the patient—instead of exhibiting a good active purging dose—recourse is had to a caustic issue in the arm or somewhere else! and this disgusting remedy is indeed so generally adopted in Continental practice, that we may almost always snuff the unpleasant odour of a purulent discharge, when travelling in public vehicles in France!

The mere circumstance of there being some amount of tenderness of the abdomen, on pressure, is not in itself a sufficient counter indication of the use of purgative medicines. Take for example a case of typhoid Fever, in which this symptom almost always exists to a certain degree, along with a greater or less degree of disturbance in the circulation. And yet, many of the best French physicians are in the habit of administering purgatives in this malady with the most satisfactory results. Of this I am certain that, in a multitude of cases, more good will be done in the course of a week by the judicious use of purgatives, than can be effected in a month by a succession of inert ptisans, and troublesome blisters and caustic issues. The *derivation*, caused by the action of the former along the whole length of the intestinal tube is much more potent

and moreover much more in accordance with the indications of Nature, than what can be produced in any other way: for where can we find a revulsion equal to that which sets a working the innumerable glands of the bowels, as well as the liver and other chylopoietic viscera?

No one can deny that the use of Mercury, as a purgative, has been very indiscriminately resorted to by English practitioners; but things are somewhat altered now; and there is no good ground for the prejudice that exists in the minds of almost every French physician, that calomel is administered by us on all occasions, and under all circumstances, whatever be the nature of the malady that is present, or the character of the patient's constitution. The first question that a French doctor usually puts to a patient, who has been under treatment by an English one, is, "Ah, ah! you have taken calomel; is it not so?" And, ten chances to one, he forthwith attributes all the ills of his client to his having been poisoned with enormous successive doses—20 or 30 grains at a time—of mercury. This error is mainly attributable to the exceeding ignorance of most French practitioners as to the state of medical literature in foreign countries. Their journals make few extracts from the English ones; and those, that are made, are seldom of that kind to give a good idea of the practice on the other side of the Channel.

Few French physicians are willing to admit that the preparations of mercury have any specific action on the biliary secretion. On this point they are egregiously in error. As well might they deny, in my opinion, the specific action of bark in ague, sulphur in scabies, or ergot of rye in producing uterine contractions. Mercury, and especially calomel, is one of the most valuable articles of the Materia Medica; and, when administered with judgment and discretion, will often effect more benefit, in the course of two or three days, in dyspepsia and other derangements of the stomach and bowels, than all the ptisans in the world, though these were persevered in for several weeks at a time.

One word as to the amount of doses applicable to the two people, to which we have been alluding in the preceding remarks. The French physician is often astonished, if not affrighted, at the large doses of certain potent medicines which are so commonly administered without reserve in English practice; to a certain extent, there is certainly some ground for this alarm. The French are on the whole not so robust as the English; their diet is not so nourishing; and the air of their climate (Normandy, Picardy and Brittany excepted) is drier and more elastic. For these reasons, they cannot bear such strong and drastic doses. Perhaps about one-third more of any medicine may, as a general rule, be administered to the latter, than to the former. But surely no one can believe that there is such a difference between the climates, customs, and constitutions of the two nations, as to require an essentially different mode of treatment in the same, or in similar, maladies. And yet this idea has been long entertained by not a few medical men on the Continent. Fortunately, however, this prejudice—for we can regard it as nothing else—is gradually disappearing; and the practice of all countries begins to be more and more distinctly based on the same principles.

M. Remak on Menstruation.

"*Aristotle* asserts that Viviparous quadrupeds are, like the females of the human race, subject to a periodic discharge of blood from the organs of generation; although the quantity indeed is very much less in the former than in the latter. He adds that, the cessation of this discharge in mares and cows is a sign of conception having taken place. He calculates that the amount, lost by a *cow during heat*, must be about the measure of a 'semihemia.' *Pliny*, on the contrary, maintains that there is nothihg at all analogous to the menstrual function in the

lower animals. *Haller* was of a similar opinion with the Roman naturalist; and so was *Blumenbach*, who regarded the alleged catemenial secretion of monkeys to be a discharge of very irregular and only occasional occurrence. On the other hand, *Buffon* and *Frederick Cuvier* most distinctly maintain that certain mammiferous animals are subject to a periodic discharge of blood from their generative organs. According to the latter naturalist, the males of quadrumanous animals —when in a state of health and kept in captivity—experience an almost continual *besoin* of propagation, while their females are subject to this impulse only at determinate periods or epochs. When they (the females) are in *heat*, then there is observable a discharge from the vulva of a sanguineous fluid, which has sometimes all the characters of a veritable menstruation. The animal will not receive the approaches of the male, unless she be in *heat* at the time; the periods of which usually return every 20th or 30th day.

No *heat* or venereal excitation is experienced during the period of gestation. F. Cuvier has found this to hold true in many species of the Simiæ. He has also observed a menstrual sanguineous discharge—although its periodic recurrence was certainly more irregular than in the Quadrumana—in the mare, swine, and buffalo. *Mekel* tells us that he once noticed in a female monkey a copious periodic discharge of blood, which returned very regularly every month, and which lasted for several days each time. *Cableis* has observed in cows a mensual flux, coincident with the recurrence of *heat* in the animal; and *Ehrenberg* makes a similar remark in reference to many of the Quadrumana.

In 1838, *Numan* published some very interesting observations on the periodic discharges of blood from the generative organs in some of our domestic animals, and more especially in cows. He found that, very often at least, if not always, this flux takes place in the cow at the season of *heat*, and that both these phenomena or physiological conditions usually recur every 19 or 20 days. The discharge ceases not only during gestation, but also during the greater part of the period of suckling. Generally it does not make its appearance until the 2d or 3d day of *heat*, when the sexual feelings have become strongest. The discharge does not take place in a continuous, but in an intermittent, manner; every now and then, and at variable intervals, there is an issue of a sanguineous character from the vagina. The quantity lost seldom exceeds one or two ounces at most; the blood has a bright vermilion colour; sometimes it is pure and liquid, and at other times it is mixed with a good deal of mucus. The discharge usually lasts for two or three days at a time. *Numan* has not observed a similar phenomenon in mares: in them, as well as in sheep and swine, there is a discharge of mucus only from the vagina during the periods of *heat*. The mucus is indeed occasionally observed to be streaked with blood; but this admixture may be owing to a slight abrasion of the parts produced by over-frequent copulation. To determine with accuracy the part whence the sanguineous discharge from animals in a state of *heat* proceeds, *Numan* made a careful examination of the generative organs of a cow that was killed during this period. The mucous coat of the vagina he found to be highly reddened, but there was no trace of oozing of blood from any part of its surface; although there were indeed present a few oblong soft coagula, that appeared to have come down from the uterus. On opening this organ however, its entire inner surface, even as far as the cornua, was found to be covered with red blood, while its cavity was partially filled with coagula. The blood seemed to have proceeded exclusively from the uterine caruncles, of which there were visible at least sixty or more, of various sizes—from that of a pea to that of a kidney-bean.

From these and other observations, we may fairly conclude that, in the females of several mammiferous animals, a periodic discharge of blood really does take place from the generative organs. Whether we should consider this discharge to be analogous to the menstrual flux in women is, however, very doubtful; for in the one case it is obviously and invariably connected with an existing venereal

orgasm of these parts, whereas, in the other, it does not seem to be so. The rutting of animals is manifestly the periodic renewal of sexual activity, internal as well as external; and this is evidenced by the desire for copulation on the one hand, and by the aptitude for generation on the other; whereas, in women, on the contrary, the act of menstruation is merely a periodic increase or exaltation of the continued activity of the internal organs of generation, the aptitude for conception being present at all times, and being only more decided immediately before and after each catamenial period.

Although we cannot readily admit that the monthly sanguineous discharge is an accidental phenomenon, which is not necessarily associated with the function of menstruation, we are nevertheless led, by a careful examination of numerous physiological facts, to the conclusion—one too which has generally been adopted by the best writers—that the mere discharge from the vagina does not constitute in itself the essence, so to speak, of the function of Menstruation; but that this is only an outward evidence of a change, that has already taken place in some internal part or another of the generative organs. The non-appearance of the catamenia in a girl, about the period of puberty, is not to be regarded in itself as an actual disease, but only as a sign of atony and feebleness of the system to develop the ovarian vesicles. Hence the imprudence of those practitioners who, when the state of a patient's health at this period becomes deranged, immediately resort to the use of remedies with the view of inducing, or rather forcing, the catamenial discharge, as if the absence of this evacuation was the only and real cause of all the mischief.

Although a patient in this condition is indeed almost always much better when the discharge is once fairly established, all that we can fairly infer from this circumstance is, that its occurrence is only a sign or evidence of the improvement of the general health, quite independently of the relief which a local drain of blood will often produce in certain diseased states of the body. The establishment of the menstrual flux acts as an innocuous mode of relief for other anomalies of the health, which are not unfrequently referrible to the action of the generative organs; but it is far otherwise with the suppression of the discharge, after this has been once long established. The cessation of this compensating evacuation is apt to induce troublesome consequences, which often compromise, in a very serious manner, the health during the remainder of life."—*Annales de la Chir. Française et Etrangère.*

M. RACIBORSKI ON THE CORPORA LUTEA.

"The result of all my researches has been to leave no doubt on my mind that the *Corpora lutea* are in fact nothing else but mere modifications of the ovarian Follicles, from the highest or most advanced degree of their development to the formation of those yellow-coloured tubercles which we find in many animals, and the yellowish spots which are observed in the human subject also, and which are in truth the traces or vestiges of ancient follicles.

"All these varieties or degrees of structural development have been very confusedly grouped together and characterised as the *Corpora lutea* of the ovaries; but most frequently this appellation has been employed to designate that degree or stage, which follows immediately upon the rupture of the follicles. Now the fleshy masses, which we meet with, at this stage of development, in the lower animals, are produced by the folding or plaiting of the internal membrane of the vesicles which have become diminished under the influence of the retraction of the external tunic, and of the reciprocal adhesion of the circumvolutions. As to the spongy masses of a reddish hue, which we find in the ovary of the human female at this period, we may with confidence assert that they are formed by the

fibrinous coagula of blood, and are destined to play the same part in the economy of the human female as the fleshy-looking masses do in that of the lower animals.

"Some writers have described two sorts of Corpora lutea, the true and false;—the first only being regarded as the consequence of actual conception. This opinion is, however, very far from being yet established as correct. Numerous observations on animals have now satisfied me that the appearances, found in the ovaria from rupture of the Graafian vesicles, are entirely similar on all occasions, whether this rupture may have been preceded by sexual connection or not. The experienced pathologist will not confound the alterations which are produced by rupture of the vesicles—in other words, the proper Corpora lutea—with other ovarian appearances which may have some resemblance to them.

"The number of Corpora lutea is almost always equal to that of the fœtuses contained in the uterus. Thus there is usually but one in uniparous, and two or more in multiparous conceptions. Still, it is not rare to find in the latter case a greater number of the yellow than of the minute bodies. This may be owing to the circumstance that several of the ovules—probably those, whose 'ponte' has been somewhat retarded—have not been fecundated. Having never, on any occasion, found fewer Graafian vesicles than fœtuses, I think myself fully warranted in recognising in this fact the expression of a law, that holds good throughout Nature, and in believing that the same must be the case in multiparous conceptions in the human female, and that there are never two ovules present in one and the same Graafian follicle.

"We need scarcely say that, in all examinations of this sort, it is most important,—when we endeavour to determine the relations that exist between the number of the Corpora lutea and that of the fœtuses,—to recollect that, in the presence of every gestation, there are always the Corpora lutea of prèceding 'pontes,' and consequently that it is most necessary to distinguish those which belong to the last pregnancy from all the others."—*L'Experience.*

(Would that many of the descriptions and narratives of continental writers were often more easily intelligible! As far as we understand M. *Raciborski's* Essay, we presume that, in his opinion, the Corpora lutea are certainly not produced by conception, and consequently cannot be any sign or mark of impregnation; but that they are the mere result of the rupture of the ovarian vesicles—an act or process that takes place at every period of menstruation.)

On Tympanitis and Dropsy of the Uterus.

Those distinguished obstetrical authorities, *Stoltz* and *Naegele*, having, at the Medical Congress held in 1842 at Strasbourg, expressed their unbelief in the existence of these diseases, Dr. *Tessier* of Lyons has collected together the details of several cases which, he thinks, clearly demonstrate the error of their opinion.

Case 1.—A middle-aged woman, of a strong but highly-nervous constitution, was admitted into the Hôtel Dieu, for chronic metritis complicated with Hysteria. The body and cervix of the uterus were found to be considerably engorged on manual examination; there was present an old-existing leucorrhœal discharge; the catamenia were irregular in their recurrence; and the patient complained of pain in the hypogastric and renal regions. About the period of her reception into the hospital, the abdomen began to become much tumefied, and the quantity of leucorrheal discharge to be very decidedly diminished. As the menses were also absent, the woman believed herself to be pregnant. On vaginal examination, the uterus was found to be voluminous, but light; while percussion

of the hypogastrium elicited a clear sonorous sound. The distention of the abdomen gradually increased, and the woman began to fancy that she felt the movements of the child within her; but, as neither the placentary bruit nor the sound of the fœtal heart could be detected on auscultation, (the menses had now been absent for more than six months,) I was of opinion that she was not pregnant at all. One afternoon she was suddenly seized with labour-like pains, and these were quickly followed by a copious discharge of an offensive *flatus* from the vagina. As this escaped, the size of the abdomen gradually subsided, until it was nearly flat. It should be remarked that there was no clot, mole, or any other substance expelled, the putrefaction of which could at all account for the gaseous secretion. This woman was subsequently liable to returns of uterine Tympanitis, which always relieved itself in the way now mentioned. This case occurred in Dr. *Tessier's* own practice, and he had therefore abundant opportunities of ascertaining the perfect truth of all the particulars. He proceeds to cite other cases reported in various works. *Frank* (in his Medicina Practica) mentions the cases of two women, who, after being long subject to leucorrhea, were every now and then seized with hypogastric pain, tenesmus of the uterus, sickness, and tendency to syncope: these symptoms generally vanished upon the explosion of a quantity of gas from the vagina. He alludes also to the history of two ladies, who were believed to be pregnant by more than one eminent accoucheur, but in whom the abdominal distention was owing entirely to uterine Emphysema.

In the Revue Medicale for 1830, an account is given of a lady, who supposed that she was five months advanced in pregnancy, in consequence of the cessation of the catamenia, and the gradual enlargement of the abdomen. Her hopes, however, proved vain; and all symptoms vanished upon the escape of a quantity of flatulence from the vagina. M. *Colombat* relates a similar instance in his Treatise on the Diseases of Women. M. *Lisfranc* also, in the 3d volume of his Clinique Chirurgicale, mentions the case of uterine Tympanitis; but, in this instance, there was also a mole present—although a small one—at the same time; so that this cannot be regarded as a genuine example of the disease.

So much for Tympanitis of the uterus; let us now briefly notice some cases of Hydrometra or Dropsy of this organ. *Fernel* tells us of a woman, who, at each menstrual period, discharged by the vagina an enormous quantity of water, upon the escape of which the abdomen subsided, and the menses then flowed as in health. The serous collection formed regularly every month. *Mauriceau*, in reference to this malady, expresses himself thus:—"There are women who, believing themselves to be pregnant, have only dropsy of the uterus. This was the case with a patient whom I saw some years ago. She never was pregnant; but she continued to entertain hopes of a family till she was 55 years of age, because there remained; up to that period, occasional traces of menstruation. On one occasion, she was so fully convinced of her approaching accouchement, that she prepared the baby's clothes, and actually sent for her nurse to be with her. Two or three days afterwards, to her great disappointment, all her hopes vanished in a discharge of wind and water from the uterus."

In the 2d volume of the Journal de Medicine, there is the report of an interesting case by M. *Blegny*, of a Countess who was affected, for several years, with a distention of the abdomen, and some other symptoms which at first had given rise to the suspicion of pregnancy. During a fit of violent coughing, she discharged a prodigious quantity of water: from that day she never ailed a whit. M. *Lisfranc* also may be adduced as admitting the occasional existence of Hydrometra, and he cites some interesting examples of it. We may briefly notice one of them.

A woman, 35 years of age, who had been long subject to catamenial irregularities, became affected with dropsy of the uterus. A variety of remedial means—such as drastic purgatives, emetics, sternutatories, &c.—were tried, but with-

out avail. An elastic-gum bougie was therefore introduced into the cavity of the uterus, and immediately a quantity of watery fluid escaped. The uterine distention at once subsided, and the patient quickly regained her health.

Vesalius tells us that he once found in the uterus, after death, a collection of serosity so considerable, that it could not be less than 90 kilogrammes, (plus quam centum et octoginta libras aquæ serosæ.) *Nicolai* relates a case of a sexagenarian widow, in whom the uterus was so much distended as to reach nearly to the zyphoid cartilage; the os tincæ was quite closed: on opening it, six measures at least of a fluid, like the lees of wine, flowed out.—*Gazette Medicale.*

On the Good Effects of Opiates in Metrorrhagia.

Whether M. *Simon* be correct, or not, in his idea that many cases of Metrorrhagia are dependent upon an undue nervous excitement of the uterus and its appendages, we entirely coincide with him in his laudation of opiates to arrest hæmorrhage from this organ. In a few cases, indeed, it may be necessary to have recourse to blood-letting and other antiphlogistic remedies, as in very plethoric and inflammatory subjects; but such instances form the exception and not the general rule. The French accoucheurs have, it may be observed, very generally manifested a marked disinclination to administer opiates in uterine hæmorrhage—whether this occurs at the menstrual periods, or whether it happens before or after child-birth and abortion. The following case may be mentioned as presenting a sample of the injudicious practice that is too frequently adopted in such cases, by the countrymen of M. *Simon*. "A young woman, of a highly-nervous temperament, and subject to frequent attacks of hysteria, was seized, after a protracted and severe accouchement, with shivering, præcordial anxiety, sense of suffocation, and flying pains in almost every part of the body. The pains at length became fixed in the hypogastric region, and a profuse uterine hæmorrhage supervened. *The patient was bled several times.* The discharge became more and more abundant; and the patient was so much reduced, that great apprehensions were entertained of her recovery. Dr. *Joly*, who was now called into consultation, peceiving the utter inutility of the means that had been hitherto used, and calling to mind the *English practice* of administering Opium in many cases of uterine hæmorrhage, immediately recommended its exhibition. From this moment the patient became tranquilised, the hæmorrhage abated, and, ere long, completely ceased.—*Bulletin de Therapeutique.*

Remarks.—Our chief object in introducing the previous observations is to express our very decided approval of the "English Practice," (as M. *Simon* calls it,) of administering Opium in cases of uterine Hæmorrhage. We almost invariably use it in our own practice. The formula, which we generally employ, is a mixture containing the Tinctures of Opium, Hyosciamus, and Digitalis in infusion of roses, given in repeated small doses. The patient should, as a matter of course, be kept very quiet, and all warm drinks be interdicted. If a tendency to the recurrence of the hæmorrhage continues, we know of nothing superior to the Sulphate of Zinc (made into pills) along with the diluted Sulphuric Acid. It is also an admirable remedy in many cases of inveterate Leucorrhea.—*Rev.*

Professor Otto on the Action of different Medicines on the Mental Faculties.

All stimulant and exciting medicines increase the quantity of blood that is sent

to the Brain. If this quantity exceeds a certain amount, then most of the faculties of the Mind become over-excited. Nevertheless the degree of this action is observed to vary a good deal in different cerebral organisations; and it is also found that certain stimulants exercise a peculiar and characteristic influence upon special or individual faculties. Thus Ammonia and its preparations, as well as Musk, Castor, Wine, and Ether, unquestionably enliven the Imaginative powers, and thus serve to render the mind more fertile and creative. The empyreumatic Oils are apt to induce a tendency to Melancholy, and mental hallucinations. Phosphorus acts on the instinct of propagation, and increases sexual desire: hence it has often been recommended in cases of Impotence. Iodine seems to have a somewhat analogous influence; but then it often diminishes, at the same time, the energy of the intellectual powers. Cantharides, it is well known, are a direct stimulant of the sexual organs; while Camphor tends to moderate and lull the irritability of these parts.

Of the metals, Arsenic has a tendency to induce lowness and depression of the spirits; while the preparations of Gold serve to elevate and excite them. Mercury is exceeding apt to bring on a morbid sensibility, and an inaptitude for all active occupation.

Of narcotics, Opium is found to augment the erotic propensities, as well as the general powers of the intellect, but more especially the imagination. Those who take it in excess, are, it is well known, liable to priapism. In smaller doses, it enlivens the ideas and induces various hallucinations, so that it may be truly said that, during the stupor which it induces, the mind continues to be awake while the body is asleep. In some persons, Opium excites inordinate loquacity; Dr. *Gregory* says, that this effect is observed more especially after the use of the Muriate of Morphia. He noticed this effect in numerous patients, and he then tried the experiment on himself with a similar result. He felt, he tells us, while under its operation, an invincible desire to speak, and possessed, moreover, an unusual fluency of language. Hence he recommends its use to those who may be called upon to address any public assembly, and who have not sufficient confidence in their own unassisted powers.

Other narcotics are observed to act very differently on the brain and its faculties from opium. Belladonna usually impairs the intellectual energies; Hyosciamus renders the person violent, impetuous, and ill-mannered. Conium dulls and deadens the intellect; and Digitalis is decidedly anti-aphrodisiac. Hemp will often induce an inextinguishable gaiety of spirits; it enters into the composition of the intoxicating drink which the Indians call *bauss*. The use of the *Amanita Muscaria* is said to have inspired the Scandinavian warriors with a wild and ferocious courage. Tobacco acts in a very similar manner with Opium, even in those persons who are accustomed to its use: almost all smokers assert that it stimulates the powers of the Imagination.

If the psychological action of medicines were better known, medical men might be able to vary their exhibition, according to the characters and mental peculiarities of their patients. The treatment of different kinds of monomaniacal Derangement also might be much improved; and it is not improbable but that even a favourable change might be wrought on certain vicious and perverse dispositions, which unfortunately resist all attempts at reformation, whether in the way of admonition, reproof, or even of correction.—*Zeitschrift für die gesammte Medicin.*

M. PIGEAUX ON DISEASES OF THE HEART.

This estimable author has recently completed his *Traité Pratique des Maladies du Cœur et des Vaisseaux*—a work which now forms a most useful compendium

of information on this important branch of pathological inquiry. It is well known that M. *Pigeaux* has, for a great number of years, devoted his attention in a particular manner to the investigation of cardiac diseases. He was the first in France to impugn the accuracy of *Laennec's* hypothesis respecting the nature of the sounds of the Heart, and to show that the mere muscular contraction of its ventricular walls is wholly insufficient to explain this ausculatory phenomenon. Although the theory, proposed as a substitute by M. *Pigeaux*, was afterwards shown to be equally unsatisfactory as that which he had so successfully combated, no one will deny that his writings have contributed not a little to extend and improve our knowledge respecting the Physiology and Pathology of the Heart's actions.

However much disposed many persons (and we gladly rank ourselves in the number) are, in the present day, to trace back most of our valuable knowledge on medical matters to the writers of antiquity, it must be admitted that modern authors have very greatly enlarged and illuminated the domain of cardiac pathology.

It is to Mr. *Hodgson* that we owe the first comprehensive work on the diseases of the Circulatory system; and certainly the admirable notes, with which M. *Breschet* enlarged the French translation, have contributed, in no small degree, to its wide-spread popularity and usefulness. Subsequently, the writings of MM. *Dance*, *Bouillaud*, *Cruveilhier*, *Briquet*, *Velpeau*, &c. have served to explain and illustrate many obscure and difficult topics of inquiry.

To concentrate and systematise all the labours of others, and to blend with these the results of his own elaborate inquiries, has been the object of M. *Pigeaux* in the present work, and very ably has he executed his laborious task. Our author is not a mere compiler; he is a shrewd and ingenious observer. Perhaps his chief besetting sin is a love for physiological speculation. In describing the mechanism of the circulation, he attaches far too great importance, in our opinion, to the direct attraction which the capillary vessels exercise, he thinks, towards the blood. We might not object to this, if we did not find that the physiological theory formed the basis of practical deductions. But what is the case? M. *Pigeaux*, resting on the idea that the course of the arterial Circulation is mainly owing to the attraction of the Capillaries for their contents, goes so far as fondly to imagine, that the ligature in the case of wounded arteries may even be dispensed with. In perusing his writings, it is very necessary to keep this favourite dogma of our author steadily in view.

The extra-scientific appellations of *true* and *false* Aneurysm are very properly replaced by those of *traumatic* and *symptomatic* or *spontaneous*. The description given of erectile tumors, (or, as they used to be called, aneurysms by anastomosis,) is full of very interesting and instructive matter: the chapter, indeed, devoted to this subject, is one of the most important in the whole work. There is, also, a very valuable chapter on the diseases of the Lymphatic vessels, and another on the morbid alterations of the blood in various diseases.—*L'Experience*.

On the Diseases of Old Age.

The following remarks are from the pen of M. *Beau*, and have been derived from an extensive series of observations on the aged female inmates of the Saltpétriére Hospice.

General Pathology.—The diseases of old age are usually of a complicated character; for, in almost every case, there is a chronic malady of some organ or another of the body, superadded to and associated with the actual and existing indisposition. It is important to bear this fact in mind, as the physician might

otherwise be often apt to confound the symptoms arising from one source with those attributable to the other.

The activity of the Corporeal Sympathies being much impaired, and often almost entirely exhausted, in advanced age, it is very necessary to examine with minute attention the state of *all* the organs of the body, when any distinct and obvious disease supervenes.

The Delirium of old people differs much from that which occurs in persons of early and adult age; in the former, it is generally announced first by words and then by actions; whereas, in the latter, the reverse of this is usually the case.

Inflammation of the parotid glands is apt to occur in every form of adynamic febrile disease in old age.

Dryness of the tongue is a symptom of much greater frequency in old than in middle age. Sometimes this state exists alone, without any other appreciable sign of disease.

Shivering on the one hand, and profuse perspiration on the other, are phenomena of rare occurrence in aged patients. Subsultus tendinum also is very seldom met with in such invalids.

The acute diseases of old persons in the summer months almost always consist in affections, the basis of which is some disturbance of the Gastro-Intestinal apparatus. Such attacks may often be dissipated, almost magically, by the exhibition of an emetic and purgative. All the other most common diseases of old age, such as Catarrh, Pneumonia, various cerebral maladies, &c. are almost exclusively observed during the cold season of the year.

Special Pathology.—Simple gutteral Cynanche rarely occurs in old age.

Gastric disturbance is by far the most frequent disease of this period of life. Whatever be the form it assumes, the best remedy is unquestionably an emetic of ipecacuan, or, what is still better, tartrate of antimony.* Unless the attack be more complicated than usual, it will seldom resist this simple, but most efficacious, mode of treatment. As a matter of course, if any other malady be co-existent, the case will prove of more difficult treatment.

M. *Beau* has never witnessed a case of spontaneous acute Peritonitis in old age. When the chronic disease has been observed at this period of life, it has generally been the consequence of cancerous (not tuberculous) productions within the abdomen.

Laryngeal catarrh is a malady that is seldom seen; the tracheal form is of rather more frequent occurrence; but Bronchitis is infinitely more common than either. During the winter months, one half of the inmates of the Hospice are usually more or less severely affected with it.

The Catarrhal form of Phthisis—in other words, the chronic Catarrh which induces gradual consumption and death—is much more frequent than the genuine Tuberculous form in old people. During the last twelve months M. *Beau* had 9 cases of the latter malady, and 15 of the former, under his care. From this circumstance we may conclude that, whenever we meet with a general wasting of the body, frequent cough and expectoration of purulent matter in an old person, there is considerably more chance that the case is one of Catarrh than of tubercular Phthisis; and this chance is the greater, in proportion as the individual is more advanced in years. A very marked symptom of this condition is the decay, or even the entire loss, of the appetite. The emaciation of the body is probably owing quite as much to the existing Anorexia as to the purulent secre-

---

* This is a piece of excellent practical advice. The use of emetics is far too much neglected in the present day, and most practitioners are unnecessarily timid about using them in old patients. A single emetic will often effect more good in the course of a day than any other remedy in a week or more.

tion from the air-passages. M. *Beau* recommends, with the view of restoring the appetite, an emetic in the first instance, and then the decoction of Polygala or of Lichen islandicus, Morton's balsamic pills, syrup of Tolu, Bordeaux or Bagnols wine. Fortunately this medication generally serves a double purpose; for it exerts a beneficial effect on the condition of the respiratory as well as that of the gastric apparatus. In three cases of this Catarrhal phthisis, which proved fatal, our author could not discover on dissection any traces of decided lesion in the mucous membrane of the bronchi.

The course of genuine tuberculous Phthisis is generally very slow in old age; there is seldom any colliquative sweats or purging. In most cases, the deposition of the tuberculous matter is limited to one or two circumscribed parts of the upper lobes, and is not disseminated through the substance of the lungs. On one occasion only, were tubercles found in both lungs.

M. *Beau* is inclined to adopt M. *Laennec's* opinion respecting the spots of induration not unfrequently met with on the pulmonic surface, and to regard them as produced by the Healing or cicatrisation of small tuberculous deposits. He comes to this conclusion, 1, because he deems it very unlikely that these indurations are produced either by apoplectic ecchymosis, purulent formation, or circumscribed infiltration of the pulmonic substance; and 2, because, out of 176 non-phthisical aged women, in whose cases he had made a post-mortem examination, he found Cicatrices on the upper lobes of the lungs in no fewer than 173 cases. According to the researches of M. *Louis*, tubercular phthisis is of more frequent occurrence in the female than in the male sex; and the accuracy of this remark is borne out by the experience of M. *Beau* in reference to aged people.

Pneumonia in old age very often presents an Intermittent character, under the influence of treatment; all the symptoms, physical as well as rational, sometimes ceasing (after a bleeding for example) for an entire day or so, to return perhaps on the following one with its accustomed or perhaps aggravated severity. This temporary *lull* of the symptoms may occur three or four times, in the course of the treatment. Hence the necessity of the physician being very guarded in his Prognosis as to the ultimate issue, and of his being cautious even in giving an opinion respecting the probable duration of the disease; for a patient may seem to be one day on the fair road to recovery, and, the very next, his case may turn out to be utterly hopeless.—*Journal de Medecine.*

Non-injurious Effects of Solitary Imprisonment with Labour.

The recently-published reports of the state of the prisoners in the *Roquette* prison at Paris, in reference to their bodily and mental health, quite confirm the statements that have been made on this subject by the physician and other officers of the United States prisons, at Cherry Hill and Moyamensing in Pennsylvania. The system pursued is constant Solitary Confinement in separate cells, in conjunction, however, with regular occupation, exercise in the open air, and permitted visits occasionally from relatives and other persons. Each cell is thus made to become a special and complete Prison in itself; and the prisoners are prevented from having any communication whatsoever with each other. Their attention is kept constantly engaged in some useful and profitable employment; and moreover they hear and see nothing that can in any way remind them of their vicious pursuits. It has however been supposed that, even under these advantages, Solitary Confinement is apt to bring on, in many cases, a more or less confirmed degree of insanity.

But this idea seems to be scarcely borne out by well-established facts. The medical officer of the great American prison at Cherry Hill gave his evidence on

this subject, in the following terms: "You ask me if solitary imprisonment with work has seemed to me to encourage a tendency to Insanity. So far as I have been able to judge, I feel strongly convinced that this plan, so far from being injurious to the general health of the prisoners, has been decidedly beneficial in every respect, alike to mind and body. Since indeed the prisoners have been confined in the new prison of the county, I have met with a good many cases of Mental Derangement; but in no single instance have I had reason to believe that the regime of the prison had anything to do with producing the malady. So far from this being the case, I am rather inclined to assert that the solitary confinement—in conjunction (be it always remembered) with regular labour and bodily exercise—has materially contributed to the recovery of the reason, in a good many instances."

From the official reports, that were submitted to the Senate of Pennsylvania, we learn that the mortality in the prison, during last year, did not exceed that of the free population in the city; and moreover, that not a single case of Insanity occurred during the whole twelve months—although no fewer than 26 cases were met with in the year 1839.

So much for the state of the Pennsylvania prisons. In the *Roquette* prison at Paris—which has now been established for upwards of four years, and in which from four to five hundred young criminals are usually confined—not a single case of Insanity has occurred among the prisoners; and yet one might, *à priori*, have supposed that solitary confinement should have been more injurious, in this respect, in youth than in adult age. As to the ratio of the Mortality, this has not exceeded from 7 to 8 per cent.—being not above one-half of the average mortality among the lower classes of the inhabitants in the French metropolis. In his report for last year, the Prefect of the police says:—"The robust population of the prison—who, before the regime of solitary *encellulement* was introduced, were thin, pale, and ill looking—have, for a length of time past, exhibited a very marked change for the better, in their general appearance; they look healthy, and not a few of them appear to be cheerful and contented too. The fears which we, in common with many other individuals, entertained as to the effects of the Solitary System on the youthful prisoners in the *Roquette*, have been completely dissipated by the results which we have witnessed during the last two years."—*Annal. Med. Psych.*

NEW EDITION OF THE WORK OF CABANIS.

It is always interesting, and withal often very instructive, to look back at some of those writings, which, in the life of our fathers, and in the old time before them, exercised a wide influence upon public opinion. That period, that immediately preceded the outbreak of the French revolution, must always be regarded by the thoughtful reader as one of especial interest in its bearings on literature as well as on the higher interests of politics, morality, and, above all, of religion. Few of the works of that date were received with more eclat at the time, or are more likely to retain a place in the library of the student, than the famous 'Rapports du Physique et du Moral de l'Homme.' Dr. *Cerise* has recently brought out a new edition of this celebrated Physiological and Psychological book; appending to it not only a life of the author, but (what is more valuable) numerous annotations and comments, with the view of exposing the fallacy of many of its arguments, and the dangerous tendency of its general doctrines. The following notice of this new edition—published by Fortin and Masson of Paris—is taken from the pages of the Revue Medicale.

"The name of *Cabanis* is unquestionably one of those which best represent that famous philosophic School that flourished towards the close of last century,

and whose aim and object seemed to be to establish and diffuse, among us, the principles of Materialism. In spite of some isolated phrases and expressions, in which the author protests—but most unsatisfactorily—against this alleged tendency of his writings, it must now be acknowledged by every unprejudiced reader that they form a constituent portion of that Literature, which exercised, for a length of time, so pernicious an influence on the morals and general social character of our countrymen. The author has indeed, with great ingenuity, developed his thoughts on the intricate question as to the mutual relations between Mind and Body, illustrating it in a variety of ways, and rendering it withal as attractive as possible by the graces of an accomplished scholarship. Representing most faithfully the doctrines of the Encyclopedic philosophy—the starting-point, we may remark, *en passant*, of the writings of *Broussais* and several of his disciples—the 'Rapports, &c.' had a prodigious success at the time of its publication, a success which it has in some measure retained even to the present time. Every medical library, now-a-days, must have its copy of *Cabanis;* and what author is there who pretends to treat of the relations of the physical and moral constitution of Man, that can dispense with quoting the standard work on the subject?—whether it be with the aim of impugning some of its doctrines, or of merely parading them before the eyes of the multitude in the way of illustration and argument. Public opinion has at times exalted this work so high, as to make it quite a standard of doctrine, and one for the possession of which the most animated controversies have been sustained.

"Dr. *Carise*, as the editor of Cabanis, has not, we rejoice to say, been contented with following the usual practice of writers under such circumstances; to wit—acting as the mere Panegyrist of his author; he has imposed on himself a far higher and more arduous duty, and one for the performance of which the religious public have much cause to be grateful to him. While ready on all occasions to do ample justice to the doctrines enunciated by his author, he does not fail, whenever a becoming opportunity presents itself, to show how incomplete, and often how utterly erroneous they are. The fallacy and dangerous tendency of much of the reasoning of this popular work are thus effectually neutralised, so that the student of the present edition is no longer apt to be led astray by the Casuistry and false teaching of the original. He points out most perspicuously and with great force how necessary it is, in all metaphysical investigations of this kind, to have a clear and distinct notion as to the meaning of the Terms, the *moral* and the *physical constitution* of man; and, after showing the objections to which these are liable, he proposes to replace them with the simpler ones of *organism* and *idea*. The first he defines to be 'the *ensemble* of those organic phenomena which, by not being associated with any idea, are produced without our cognizance;' and the second, as 'the *ensemble* of those organic phenomena which, by being associated with an idea, are cognizable by our minds.' This preliminary step being settled, it is comparatively easy to determine the definition that may be given of that Branch of physiological science which professes to investigate the mutual relations between the corporeal and the moral constitutions of our nature:—it is nothing more nor less than 'the co-ordination of the relations, in virtue of which the Organism and the Idea mutually act and re-act upon each other.'

* * * * * *

"Some writers have fondly sought to represent the Organic Operations of all living bodies—those, we mean, which are common to the animal and vegetable kingdoms,—as the evidences or manifestations of a Thinking Principle: such men belong to the school of the *pantheists*. Others represent the intellectual and moral faculties of man—to which there is certainly nothing analogous in the lower animals—as the mere manifestations of the Vital Properties: these are the *materialists*. It will be observed that both of these strange doctrines equally deny the duality, so to speak, of the human constitution; for, while the one as-

serts that everything is mere Matter, the other seeks to show that everything is mere Spirit."

"Dr. *Cerise* very happily exposes the delusive tendency of both these views, and he shows that the same mode of reasoning, when applied to the case of physiological pursuits, inevitably leads the inquirer into the same errors. For example, it is well known that *Stahl* regarded the intelligent soul as the supreme Directress of all the organic and moral phenomena of our nature. *Cabanis* and his disciple *Broussais*, took the very opposite view of the question, and considered the material organism of our bodies as the Source and spring of all the faculties and feelings of the mind.

"May it not be asked, how comes it that *Cabanis* should strive to found a science, which in reality he laboured to destroy, when he affirmed the material Unity of man? and how did he fail to recognise that obvious Duality of the human constitution, without the admission of which, the science, of which he professes to treat, can have no existence? In truth, the blindness of the author's mind on these points was owing much more to the disturbing influence of preconceived and pre-adopted notions, than to any ignorance on that subject, which he so ingeniously discussed: the cause of the error was seated in the *heart* rather than in the *head*. And where is the man who could ever calmly and impartially investigate any intricate subject of Ethical metaphysics, when his mind was tainted with the pollutions of a loose morality or of a scoffing infidelity? The thing is impossible. As the spring is, so will the water of the fountain be; if the tree be corrupt, the fruit and the branches must be corrupt also. To point out the grave error above alluded to, in the work of *Cabanis*, has been the aim of his learned Editor; and well has the latter gentleman performed his task: the shaft is no longer poisoned; nay, it rather carries an antidote to the very wound which it serves to inflict.

* * * * * *

"In conclusion, we may safely say, that Dr. *Cerise* is entitled to the very high praise for the manner in which he has performed his duty as the Editor of a work that has been, and is likely still to be, very widely known. He has taught us its real value, and, without depreciating its unquestioned merits, he has reduced its authority to a legitimate standard.

"Henceforth the reading of the 'Rapports, &c.' can no longer be regarded as dangerous to the young student of physiology; for certainly there is little chance of his being seduced by the Materialist conclusions of the author, if he will but peruse with due attention the admirable prefatory remarks of the present edition. —*Revue Medicale.*

A Nosological Text-book for the Medical School in Egypt.

During the course of the past year, there was published in Paris a volume entitled "Cours de Nosologie Clinique, par Dr. *Emangard*," professor of pathology and clinical medicine in the medical school at Cairo. This work has been translated into the Arabic language, by the express command of *Mehemet Ali*, for the use of the native students. Unfortunately it is thoroughly pervaded with the spirit of the Broussaian doctrines. Every disease seems to be, according to the author, an Inflammation and nothing else. There is not a chapter or section of the work, in which we do not meet with an ever-recurring mention of the universal phantom, *gastro-enterite*. What, for example, is Gout?—answer, a mere chronic inflammation of the stomach. What is Typhus fever?—a gastro-enterite. Yellow fever?—the same. Cholera-morbus?—aye the same. And even the Plague, the in-dwelling pestilence of the country, is set down in the

same category of the nosological scheme.* The mother-idea of *Broussais* is transparent in every part of this work. Unfortunately Dr. *Emangard* is a devoted disciple of the grand reformer, not only in theory but in practice: he is, to say the least of it, consistent; what he teaches in the closet he practises at the bed-side; what he declares from the professor's seat, he enforces in the wards of the hospital. The treatment of diseases, a subject that is so difficult for physicians who have not the *clair-voyance* of those who proclaim themselves to be the only true Physiologists, becomes in his hands the most simple matter in the world. Blood-letting and low diet constitute the principal, we should rather say the only, basis of anti-irritative therapeutics. We may notice one point of difference between the system of treatment recommended by the Master and that pursued by the Disciple: the former invariably ordered gummed water, while the latter uses nothing but the pure unadulterated element!

Having settled the etiology of all the genuine Pyrexiæ and Phlegmasiæ, our single-idea author proceeeds to describe the genuine Neuroses—which, according to his nosological creed, are, as a matter of course, all referrible to mere irrritation in some part or another. He founds his belief on this subject, he says, on the results of those decisive (to him) experiments which have established the perfect identity of the Nervous and the Electric agencies; and, proceeding from this starting-point, he endeavours to show that every Neurosis is due to an accumulation of Electricity, just as every Phlegmasia is due to the accumulation of Blood, in the affected part or organ of the body. He adopts to the full extent the idea of *Broussais*, that the nervous power or influence is truly and strictly one form of Matter—which therefore may, under certain circumstances, be present either in an excessive or in a deficient degree throughout the system. Once that this point is determined—viz. the materiality of the nervous power—Dr. *Emangard* finds, as may be readily supposed, no difficulty in explaining the nature and proximate cause of the Neuroses: they are placed on the same line as the Phlegmasiæ, and constitute one of the two species which form the *genus* 'Irritation.' He seems to regard the human body as a mere large and complex Electrical Machine, which, by becoming charged with varying proportions of the vivifying fluid, exhibits the conditions of excessive or deficient innervation. All this is vastly ingenious: but the important question comes to be, is it true? The first-year medical student can answer the question as well as ourselves.—*Revue Medicale.*

VARIATIONS IN THE CLIMATE OF FRANCE.

Every classic reader knows full well how severe the Winters used to be in France during the time of Julius Cæsar, when even the Rhone was frequently so firmly frozen that troops, with all their baggage, could be passed over it without difficulty. A vast portion of the country was then covered with dense Forests, which, by excluding the rays of the sun, and by retaining a continual cold damp fog on the surface of the ground, must always contribute very powerfully to the reduction of the general temperature. There is every reason to believe that, in those days, the Vine and Fig-tree were scarcely, if at all, known in France.

The climate seems to have become more genial in the course of the first Christian century. Mr. *Fuster*, in his recent memoir read before the Academy, very clearly

* We need scarcely add, that Dr. *Emangard* is a most strenuous anti-contagionist. He utterly rejects everything that is at all opposed to his view of the question, and, as a matter of course, inveighs very forcibly against the inutility of all Quarantine establishments.

proves the truth of this, by tracing the ascensional advance of the cultivation of the vine, from the South towards the North.

Before the time of *Strabo* arrested, so to speak, at the foot of the Cevennes, it (the vine) now began to pass over this barrier: *Columella* found it in the country of the Allobrogi (Dauphiny,) and *Pliny* saw it growing spontaneously in Auvergne and even in Franche-Comté. In the year 69 of the Christian Æra, when the Emperor *Domitian* ordered all the vines in France to be destroyed, we learn from history that the cultivation of this plant had not been carried farther North than the environs of Autun. Subsequently however, in the reign of *Probus*, we find that it was cultivated along the banks of the Seine, and also that the fig-tree followed, but at one or two degrees further South, in its wake. *Julian*, who lived for a short time in the small town of Lutetia (Paris) during the 4th Century, has drawn a charming picture of the surrounding district. He praises the great mildness of the climate, the excellence of its vines, and the rapid multiplication of its fig-trees. We learn also, by one of his letters, that the corn was quite ripe, at the Summer Solstice, even in the northern provinces. During the course of the following century, the climate of France appears to have become still warmer and its soil more fertile; for even Normandy, Picardy, and Brittany then produced abundant harvests of grapes, and the wine thus procured was not a little esteemed. The vintage usually took place in September, but some years as early as August. The corn harvest was very generally in the first or second week of July. This genial state of things seems to have continued for several centuries; and it was not until the 12th or 13th century that any decided signs of deterioration of climate were anywhere remarked. One of the Norman *fabliaux*, of the time of Philip Augustus, expressly mentions the wine of Beauvais as one of the very best in the kingdom; but even at this period (1228—1239), it seems that the vineyards had very sensibly decayed in the most northern districts, and that in the neighbourhood of Cherbourg they had nearly quite disappeared. The district of Eu was then famous for its apples, and for the fine cider which the inhabitants made. As the vineyards in different parts failed, the orchards gradually increased; so that, in course of time, almost the entire extent of the northern provinces—including Flanders, Artois, Normandy, Brittany and Picardy—became and has remained an apple-growing country, the vine thriving only in a few sheltered spots.

The alteration in the climate of France was at first confined to the Northern Provinces; it reached the Southern ones only step by step, and at a considerably later period. The vines of the neighbourhood of Saon had a very high repute at the close of the 15th Century; and many of the writers of the following century celebrate the richness and strength of the wines that were still made in the environs of Paris, especially those of Argenteuil, Marly, and Montmartre. The vintage was then in the month of September. At this time too, orange, lemon and citron-trees flourished without difficulty throughout the whole of Provence, and in many districts of Languedoc; and even the sugar-cane, we are told by *Ollivier de Serres*, was fairly acclimated in the former province.

Our climate, adds M. *Fuster*, continued very sensibly to deteriorate from the North to the South, during the 17th and 18th Centuries. The Paris wines fell into discredit; the orange and lemon trees no longer thrived in Languedoc; the sugar-cane entirely disappeared from Provence; and the olive tree gradually receded to the Southern Coasts. Notwithstanding, however, these changes, the central and meridional districts of the kingdom still retained a warm and very genial climate. The wines of Orleans were esteemed among the best in the country during the 17th Century; the olive tree flourished at Carcassone, and along a great portion of the East Coast; palm trees were abundant in Provence, and the whole champagne district of this province between Orgon, Aix, and Marseilles, produced large quantities of oranges and lemons, as fine as did the country between Marseilles, Hyeres, and Frejus.

The 18th Century deprived our climate of all these advantages. It has witnessed the last vintages of Normandy and Brittany; the impoverishment of the vineyards in Maine, Anjou, and Orleans: the retreat of the olive beyond Carcassone, and of the orange still farther South; and it has reduced the palm-trees of Provence to a state of entire unfruitfulness. During the last 60 years, the deterioration of the climate of France appears to have been continually going on. In the present day, the grape does not ripen very readily in the open air in the northern provinces; even many of the finer stone-fruits, such as the peach, nectarine, &c., do not thrive there at all well, except on espalier trees; and the olive no longer grows at Carcassone, nor to the North of Montelimart, on the left bank of the Rhone. *Decandolle*, in 1835, calculated the retrogradation of this tree in the department of the Aude at 5 *myriametres*, since the year 1789. It appears also, from the researches of Malte-Brun, that in the present day the wheat of France is less productive, by nearly one-quarter, than it was in that year.—*Gazette Medicale*.

Remarks.—The facts mentioned by M. *Fuster*, respecting the changes in the climate of France, are not undeserving the attention of the medical philosopher, as we need scarcely say that the character of the Endemic, as well as of many of the Occasional and accidental Diseases of a country will always be very materially affected by any great alterations in its atmospheric and terrestrial conditions. We were not aware that the average temperature of France had so very sensibly declined within the last century or two, as it seems from the researches of our author to have done.

M. DONNÉ ON THE MICROSCOPIC EXAMINATION OF THE FLUIDS.

The recently-published work—Cours de Microscopie—of this gentleman is, as might be expected, attracting much notice among his professional brethren in his own country. It is a most elaborate performance, and evinces the zeal and ability of the author in discussing his favourite subject. All the Fluids of the body, from the Blood to the Synovia of the joints and the humours of the eye, are successively brought under review, and their microscopic and chemical characters described with great exactness. The following brief *excerpta*, from some of the chapters, will enable our readers to judge of the general style of their contents.

* * * * *

The formation of the Buffy Coat depends, according to his observations, on the density of the blood and the time it takes to coagulate; the richer it is in solid matter, the more time is required for its perfect coagulation. The *maximum* of density, however, seems rather to impede, in a certain degree, this process: hence the buffy coat is often much stronger at the *second* than at the *first* bleeding, in many cases of Acute Rheumatism and Pneumonia. The degree of density appears to be commensurate with the quantity of the albumen, rather than of the fibrine, existing in the blood. When very dense, the Coagulation occupies at least 12 or 15 minutes, before the buffy coat is fully formed. When the coagulation is very rapid, as is usually the case in Typhoid fever, (in which disease the blood will sometimes gelatinise in three or four minutes,) there is not time enough for the formation of any buffy coat. As a general remark, it may be stated that there is seldom a distinct Buffiness formed, when the process of Coagulation occupies less than ten minutes. M. *Donné* draws, from the coagulation of the blood in the blood-vessels, an ingenious sign to determine the presence of Death. When life is extinct, the blood, received into a watch-glass, will be found to produce only a reddish serosity, but no clot; for this, already coagulated, remains behind in the blood-vessels.

In his elaborate description of the red Globules, our author expressly denies the commonly-received assertion of many physiologists that these bodies are *nucleated*. In the blood of the adult at least, there are certainly no nuclei present in the globules; but it seems probable that they may exist in those of the young embryo. He alludes particularly to the fact that the globules, after the escape of the blood from the vessels, are sometimes apt to become clustered together; they then form chaplets, or bead-like rows, &c. Not unfrequently some of them have a crisped appearance, and are less transparent than the others: this has been considered, but incorrectly, to be the result of a diseased condition. There is no difference, according to our author, between the globules of Venous and those of Arterial blood.

In reference to the blood in the embryotic chick, M. *Donné* says that the globules are distinctly visible before any appearance of the Heart can be discovered, and that they are already subject to an oscillatory movement in the direction from the periphery to the centre, where the future heart is situated. This opinion, although in accordance with that professed by most physiologists in the present day, is, according to Dr. *Lebert*, the reviewer of Dr. *Donné's* work in the Annales de Chirurgie, not correct. His researches, carried on along with Dr. *Prevost* of Geneva, have led him to the very opposite conclusion; viz. that, in the chick, the heart and vessels are formed before the blood-globules. These, he says, are developed in the translucent fluid already contained within vascular parietes, and then the earliest movement communicated to the columns of the blood begins at the Heart, and has a centrifugal character—a character which however seems to be oscillatory during the first hours of the circulation, because the contractions of the heart have not yet the due degree of power, which they afterwards possess.

This section of the work is closed with a very interesting observation on the subject of Transfusion; to wit, that the accidents, consecutive on this operation, are attributable not to the different form of the Globules of the injected blood, but rather to the coagulation of its Fibrine; and that any and every sort of blood may be injected, in certain quantities, into the veins of an animal without producing any alarming consequences, provided the fibrine has been previously removed.

M. *Donné* then proceeds to describe the white or colourless globules, and also what he calls the Globulines of the blood. The former resemble the globules of mucus; they contain three or four solid granules within; they are not affected by water, but are condensed and contracted by acetic acid. In the process of coagulation, they will be found present in a greyish stratum between the serum and the red layer of the globules.

By the term 'globulines,' our author designates the minute granules, observable in a state of molecular movement in the blood. He is of opinion that the white globules are the globulines of the Chyle, uniting with each other in groups of three or four, and becoming enveloped with an albuminous covering, by rolling about in the sanguineous fluid. But this is still very uncertain. In the embryo of the Batrachian animals, we have been able to watch the primitive organoplastic globules becoming transformed into blood-globules.

A part of the Globules becomes dissolved in the liquid portion of the blood, transudes through the walls of the capillary vessels, and thus constitutes the nutritious and Organizing Fluid of the body. We have been able, on several occasions, fully to satisfy ourselves on this point; to wit, the Solution of the globules in the liquid part of the blood; for, in our experiments on the process of inflammation, we have distinctly seen the fluid, which surrounded the irritated and engorged vessels, become tinged with a red colouring matter: this could proceed only from dissolved globules, as there were none visible on the outside of the vessels.

To show the Circulation of the blood to his pupils, M. *Donné* has been, for

some time past, in the habit of employing the tongue of the frog, as the object under the microscope—an ingenious idea; for the mechanism of muscular contraction can be witnessed at the same time. The play of the circulation is very expressively compared to a geographical map, in which all the rivers and streamlets are supposed to become suddenly animated. The rapid and whirling-like circulation around the mucous follicles is also observable, at the same time.

In his description of the morbid alterations of the blood, M. *Donné* first gives a succinct history of the late admirable researches of MM. *Andral* and *Gavarret*, and he then details the results of his own observations in this interesting department of pathological inquiry. We shall briefly notice a few of these. In Chlorosis, the red globules are *decolorés*, and more transparent than in health; in Typhus Fever, they are not at all changed from the normal standard. The globules of purulent matter are not distinguishable in the blood from the white globules, which normally exist in it. These latter may, under certain unknown circumstances, exist much more abundantly than they do in a state of health. This anomaly is present more particularly in the blood of patients, who have been long labouring under some grave disease or lesion, and whose systems are enfeebled by protracted illness.

The blood sometimes exhibits an oily condition; and its globules, instead of being separate and distinct, are agglomerated together in chaplets or little groups. The occasional white or milky appearance of the blood is owing to the admixture of untransformed chyle with the circulating fluid. M. *Donné* relates a curious example of this anomaly.

Mucus.—This secretion is found, on microscopic examination, to be composed of a viscid stringy fluid, and of a solid matter that consists chiefly of shreds of the epithelium. It is sometimes acid, and at other times alkaline. M. *Donné* distinguishes three kinds of mucus membranes: 1. Those that are analogous to the skin, which furnish a frothy acid secretion; for example, the lining of the vagina. These acid-mucous membranes, which our author calls *false*, never exhibit any vibratory cilia on their surface. 2. *True* mucous membranes—as that of the bronchi—which secrete a fluid that possesses alkaline properties, is viscid, and contains mucous globules: these are supplied with vibratory cilia. 3. Intermediate mucous membranes, which secrete a mixed kind of mucus: of this kind are those which exist around the orifices of the mouth, nose, anus, &c.

The globules of the *true* mucus, as that secreted by the air-passages, are, in our author's opinion, very nearly identical with those of purulent matter. He therefore seems inclined to attach but little value, in diagnostic inquiries, to the mere presence of pus in the sputa, and thinks that no very trustworthy inference can be deduced from this phenomenon as to the gravity of an existing disease. M. *Donné* has probably carried his scepticism on this point somewhat too far, although we are quite disposed to agree with him, that we must not attach too much importance to the microscopic appearance of the sputa in suspected tuberculous disease of the lungs; as we have more than once failed to detect any traces of tuberculous matter in the expectoration, even when the tubercles had unquestionably become softened, and vomicæ had formed. In the mucus of the alimentary canal, we observe numerous altered modified globules, and conical epithelial cells; that of the vagina contains many epidermic vesicles and minute filaments. Our author has discovered in the vaginal mucus a very curious infusory animalcule, which he calls *Tricho-monas Vaginæ*.

As we have already said, M. *Donné* denies, and justly so, the possibility of distinguishing pus from mucus by the microscopic characters of their globules alone; and he shows that it is rather in the fluid than in the solid constituents of these secretions than any distinctive features are to be sought for. In the case of the former fluid, the globules are observed to roll about in the serosity in

which they float; whereas, in the latter, they are much more sluggish and quiescent, so to speak, in consequence of the viscidity of the medium in which they are suspended. Dr. *Lebert* does not entirely agree with our author as to the alleged resemblance, far less as to the identity, of the globules of mucus with those of pus. It requires, however, he admits, a much higher magnifying power than is usually employed to detect, with any degree of satisfaction, the differences that really do exist. There is one fact, insisted upon by M. *Donné*, that deserves especial notice here: to wit, that the admixture of pus with fresh-drawn fluid blood renders the fibrine of the latter soft and diffluent; the coagulum which then forms, retaining very little consistence, and becoming of a dark livid hue: part also of the colouring matter becomes dissolved in the serum.

Purulent matter often contains *Vibrios;* but as these Animalcules are so frequently found present in other animal fluids, we are forced to regard them as a mere product of decomposition.

In the Sixth Chapter, M. *Donné* gives a very interesting description of the Vibratory Cilia, which exist on various mucous surfaces. The Epithelium consists of a series of imbricated cones, the free extremities of which are provided with vibratile Cilia; these, by being in continual motion, serve most effectually to promote the course of any fluid which may be present on their surface. After a certain time, the vibratile Epithelial Cellules become detached from each other, and float about free in the fluid. According to our author, they possess in this state a power of spontaneous motion; he compares them to the Spermatic Animalcules.

In the Seventh Chapter, the characteristic phenomena of most of the Secretions, such as the sweat, the saliva, the bile, urine, &c. are described at great length. The matter of Sweat has no proper microscopic particles; it generally exhibits acid properties; but is alkaline in some parts, as in the arm-pits, between the toes, and around the organs of generation. The Saliva is in itself alkaline; but, from being mixed with more or less of the mucus of the mouth, it usually exhibits an acid reaction. When evaporated, it presents very beautiful crystallisations, which recal the forms of Sal Ammoniac. The Bile is an alkaline fluid; it does not exhibit any well-marked particles under the microscope. Its presence is easily recognised in any fluid by the re-action of Nitric Acid—which turns it successively to a deep green, then a blue, and lastly a red colour, if we continue to add the Acid by degrees. The microscope is, therefore, of great value in detecting the presence of Bile, even when it exists in very small quantities indeed.

Passing over the inorganic constituents of the Urine, we may briefly enumerate the organised sediments which are not unfrequently found present in this fluid. 1. White filaments, which consist of mucous globules, epithelial scales, and occasionally also of spermatic animalcules: these substances usually come from the canals of the prostate gland. The cloud, that is often to be seen in healthy urine, is also composed of Epithelial scales and of Mucous matter. 2. The Mucous deposit properly so called; it has a greyish semi-transparent appearance, and contains globules of mucus held together by a stringy matter, and also scales of Epithelium. 3. Purulent matter: this is usually seen in a circumscribed layer of a dull opaque whitish aspect. 4. Blood, recognisable by its peculiar globules, which are soluble in Acetic Acid and in Ammonia, but are insoluble in Nitric Acid. 5. Spermatic fluid: this is always present, in greater or less quantities, in urine voided immediately after a seminal emission. 6. A peculiar fatty matter, which separates on the cooling of the urine: it communicates a whitish troubled appearance to the urine, which however becomes transparent on the addition of Ether. The pathognomonic value of this phenomenon has not hitherto been accurately determined. 7. Chylous urine: this always contains a certain quantity of blood which settles down to the bottom of the vessel, while its surface is covered with a pellicle of a creamy-looking matter. This peculiar state of the

urine is of frequent occurrence in some tropical countries. The serum of the blood, too, in such cases, has usually a milky appearance.

The preceding remarks as to the organic sediments in the urine, apply chiefly to this secretion, when it exhibits acid properties; but nearly the same deposits are observed in alkaline urine also—only that in the latter case, the globules are more disintegrated and reduced to the state of globulines; they are generally transformed into a glairy stringy substance; and the Zoosperms are usually more or less completely destroyed.

With respect to these *Animalcules*—of the *Semen*—our author thus expresses his opinion respecting their Animality.

"We peceive, by considering their mode of Generation, that they seem to be rather *animated particles* which are detached from a living organ, than animal existences properly so called." They may be viewed as the product or result of a secretion, as the vibratile Epithelium is; nevertheless, they certainly possess in a much higher degree than it the power of spontaneous motion. * * * * They quickly die in the mucus of the Vagina when this has become acid, or when a woman is pregnant; also in that of the Uterus, when it contains an excess of alkali. *Leuwenhoeck* detected the existence of Zoosperms in the Uterus and Fallopian tubes—a discovery, the truth of which has been amply confirmed by the recent observations of *Bischoff* and *Barry*. From what we have now said, it may be fairly concluded that the vitiated secretions of the generative organs may be a frequent cause of Sterility. Leucorrhœa has not this noxious effect to the extent that has generally been imagined; it is only when the mucus of the Vagina has become too acid, or contains an excess of alkali, that this result may be expected. M. *Donné* devotes a chapter to the consideration of morbid Seminal Emissions: he regrets, as altogether unsatisfactory, the explanations which have been usually given as to their etiology, and he expresses his entire disapprobation of the treatment of the complaint by the application of any caustic to the urethra. The best remedy, in his opinion, is the copious and steady use of cold water, both internally and externally.

* * * * * * *

After giving a minute account of the microscopic characters of Milk, our author describes at considerable length the peculiar constitution of the *Colostrum*. It is a yellowish and viscid fluid, but without having any predominance of the butyraceous constituent. Under the microsope it exhibits, besides imperfectly-formed globules of milk, numerous granules, which appear to be surrounded with an envelope, and sometimes contain within their own substance a few globules of milk. There is (so some have thought) considerable analogy between the globules of the Colostrum, and the large granular globules, which form one of the earliest and most frequent elements of inflammatory exudation: let us remember that, in truth, the first step in the secretion of milk is evidently accompanied with a highly congested and hyperæmic state of the Mammæ, which receive a large portion of the blood, that was previously directed to the uterus, for the nutrition of the fœtus. Moreover, these corpuscles of the Colostrum are found in the milk, whenever the Mammary gland becomes the seat of inflammatory or suppurative action; and also during those Epizootic diseases which are attended with these two orders of phenomena.

The engorgement of the breast produces granular and mucous (purulent) globules—a circumstance which confirms the view we have taken of the Colostrum. Pus is occasionally found blended with the milk; purulent milk constitutes, in the lower animals, the Epizootic disease that is known by the name of 'cocotte.' M. *Donne* has discovered globules of pus in the milk of cows affected with phthisical disease of the lungs. The admixture of milk with the blood is of rare occurrence in women, but more frequent in the lower animals. If the Catamenia are present during lactation, a number of anomalous granular corpuscles have been observed in the milk.

Of the various means that have been proposed to preserve milk, M. *Donné* gives the preference to ice used in an apparatus, which consists of two hollow cylinders, the ice being put into the inner and the milk into the outer one: the ice may require renewal every 12 hours or so.

The closing chapter of the work describes with accuracy the microscopic characters of the Chyle, the Lymph, the Synovia, the Vaccine virus, &c. The last-mentioned fluid exhibits, we are told, no specific characters, even under a tolerably high magnifying power.

Among his observations on the humours of the Eye, our author remarks that the *Muscæ volitantes*, the spider-web, &c.—which many persons see floating before their eyes, and which are in general composed of globules that are also seen isolated—must be referred to the anterior Capsule of the Lens, to the humour of *Morgagni*, and to the substance of the lens itself.

These extracts will suffice, we should think, to show the general character of M. *Donné's* work, the variety of subjects that are discussed, and the ability with which they are treated.

THE FUNCTIONS OF THE ACCESSORY NERVE.

Goerres, as far back as 1805, suggested the idea that the Nervous Vagus constituted the posterior root, and the Accessory Nerve of *Willis* the anterior root, of one of the Spinal nerves. This opinion was adopted by *Scarpa*; and its accuracy has been subsequently confirmed by the experiments of *Bischoff*, *Arnold*, *Longet*, &c.

In the well-known work of *Wrisberg* on the Nerves of the Pharynx, we meet with the following note: "Ex vulnere, quod musculum Trapezium illo in loco penetravit ubi nervus Accessarius per eundem distribuitur, ab ipso læsionis momento loquendi difficultas enata, et per reliquam vitam superstitem in balbutiem mutata fuerit."

From the researches of the physiologists now quoted, we may fairly conclude that the Nervous Vagus is a nerve of Sensation, and the Accessory nerve is one of Motion. The numerous experiments, recently performed by M. *Morganti*, abundantly establish the truth of this conclusion. In every case, where he laid bare and irritated the Accessory nerve—whether in the Vertebral canal between the Atlas and the Occipital bone, or on the exterior of this—he found that contraction of the Trapezius and Sterno-mastoid muscles was induced; while the animal did not exhibit any symptoms of pain. When he divided the nerve at its point of entrance into the *foramen lacerum*, the voice was observed to become immediately rough and hoarse, and to have a sort of whistling and hissing noise—the result of the vocal chords being paralysed.

The following are the conclusions which M. *Morganti* draws from his researches:—

1. The Accessory nerve is a nerve of Motion.
2. By its external branch, it is a motor of the muscles on which it is distributed.
3. By its internal branch, it is a motor of the intrinsic muscles of the Larynx: it is therefore the nerve of the Voice.
4. The external branch is formed by the filaments, which arise first from the Spinal Marrow; in other words, by the inferior filaments.
5. The internal branch is formed by the last filaments; that is to say, by those which arise below the Nervus Vagus. This branch in part supplies the pharyngeal nerve; it constitutes the recurrent nerve; and it gives off various motor filaments along its course or *trajet*.

6. The Accessory nerve constitutes the anterior root of the Pneumogastric nerve.—*Annali Universali; and L'Experience.*

Strange! that the subject of motory and sensory nerves should be discussed, without even any mention of *him* who first elucidated and explained its intricacies. As well might our continental confreres seek to omit the name of *Watt* in connection with the Steam-engine, or of *Faraday* with the science of Electricity, as that of *Charles Bell* with the Physiology of the Nervous System.

ANATOMY OF THE CHINESE.

M. *Lieutaud* communicated last January to the French Academy an Anatomical Engraving of the viscera of the head and trunk, which had been sold by a medical man of *Tching-hai*, after the recent capture of this place by the English troops. The date of this engraving is 1576—a period at which the Chinese could not certainly have had any knowledge as to the state of anatomical information in Europe. The letter-press, which accompanies it, is entitled a Description of the Organs of the Human Body. These are divided into the *tsang*,—which correspond to our parenchymatous viscera, and comprehend the Lungs, Heart, Liver, Spleen and Kidney—and the *fou*, or the Membranous Viscera, including the Stomach, the large and small Intestines, the Urinary and Gall Bladders. The Brain also is represented: it is called the *mother of the spinal marrow*, which is prolonged down to the os coccygis. The Trachea, on reaching the chest, is made to divide into no fewer than seven tubes, of which four proceed to the left lung, two to the right, and an intermediate one terminates on the heart. The Lungs, *fe*, are very unequally lobed; for the left one is cleft into four lobes, while the right one is only bilobed. They are grouped round, and encircle, the heart, as the petals of a flower do the pistil in the centre. The Heart, *sin*, gives out from its basis (and here the air-tube joins it) three large vessels; the left one of which passes down along the spine to the kidneys, the central one goes to the liver, and the right to the spleen.

The office of the Diaphragm, *kih mo*, is to prevent (says the text) the rising up of unsavoury effluvia from the abdomen into the thorax. The stomach, *we*, is partially covered by the Omentum, *tche man*, and communicates with the Small Intestine, *seaou tchang*, and this terminates in the great gut *ta tchang*, at the ileo-cæcal valve, *lan mun*—where the separation between the solid and fluid parts of the intestinal contents takes place. While the latter find their way to the Bladder, the former are propelled forwards to the Rectum, *tche tchang*.

The Bladder, *pang konang*, opens outwardly by the Urethra, *neaou*, which receives in its course the seminiferous canal, *tsing*. The Spleen, *pe*, is made to communicate directly with the heart by a long canal, which passes directly through the diaphragm. The lobes of the Liver, *kan*, are represented encircling the gall-bladder, *lan*, in the same manner as the lungs are represented encircling the heart in the centre of their lobes. The Kidney, *chin*, is considered by the Celestial Anatomists as the essential organ of generation, charged with the fabrication of the semen: this is excreted by a long canal, which passes down along the spinal column, crosses the rectum, and terminates in the urethra. They also hold the opinion that the Heart is the seat or the principal organ, so to speak, of the sensitive Soul; while the Mind or intellectual being resides in the liver; and the Life, or vital essence, is seated in the centre of the chest.

The translation of the Chinese text, from which these particulars have been taken, was made by M. *Stanislaus Julien*.—*L'Experience.*

M. LOMBARD'S REMARKS ON TYPHUS FEVER.

This excellent physician, having had the benefit of a British Medical Education, is exempt from one of the most besetting sins of most Continental writers—viz. a partial and exclusive view on the subject of Pyrexial pathology. He has recently contributed a series of elaborate papers to the French Medical Gazette on the Typhus or Typhoid Fever, which for a good many years past he has been in the habit of seeing in Geneva, where he resides. While he admits the great frequency of intestinal lesion in this malady, he does not fall into the egregious error of making this the "point de depart" of its etiology, or of supposing that its gravity is invariably commensurate with the amount of morbid change in the follicles and mucous glands of the bowels. He highly extols the judicious use of Calomel; and indeed seems to regard it—administered with discretion as a matter of course—as by far the most valuable remedy, in a great many cases. All that we propose to do, at the present moment, is to extract a few of the excellent remarks which the Doctor makes on the treatment of some of the most common complicating symptoms, which are apt to accompany this truly multiform, and often most perplexing of maladies.

Intestinal Hæmorrhage.—This should rarely, if ever, be regarded as a critical or salutary evacuation. It should therefore be checked without delay. One of the best remedies for the relief of this accident is unquestionably the acetate of Lead—in doses of one or two grains, with a quarter of a grain of extract of opium, every six or eight hours. Enemata with Goulard solution may also be administered. The extract of the Rhatany root, or of Logwood, and the decoction of the latter, will also be found very useful in many cases. Ice is one of the best things that the patient can take. He should remain very quiet and cool, and avoid everything that is likely to excite the bowels.

In the *Diarrhœa*, too, that is not unfrequently a most dangerous complication of Typhoid fever, the remedies now mentioned may generally be used with advantage. Sinapisms to the bowels also are often of great utility, when the relaxation is obstinate, and the debility of the system great: they should be kept applied, till considerable irritation of the skin is induced. The oxyde of Bismuth with Opium has succeeded in some inveterate cases. The Nitrate of Silver, and the Sulphate of Copper, have also been given with benefit.

In the *Pneumonia* and *Catarrh*, which not unfrequently complicate the course of Typhoid fever, the white oxyde of Antimony has been employed by us with almost uniformly good effects; it generally serves to allay the fever, to encourage perspiration, and also promote the expectoration of the sputa. In some cases, where the debility was very great, and there seemed to be a tendency to rapid exhaustion, we had recourse to the decoction of Polygala with subcarbonate of Ammonia, Musk, and Camphor; and witnessed, unquestionably, good effects from the treatment. When the Catarrhal Mucus was very abundant, and the expectoration difficult, the Muriate of Ammonia with Paregoric Elixir may often be given with benefit.*

The low *Delirium*, that is so frequently present in the progress and advanced

* This medicine—the Muriate of Ammonia, or Sal-ammoniac—is too much overlooked in the practice of British physicians. It has long been, and still remains, in high favour on the Continent, more especially among German practitioners. In a great number of cases of Bronchitis and Catarrh, it will be found a most excellent remedy, in combination with Squills or Antimony, and a little Henbane or Opium. Sir *G. Lefevre* has recently testified to its very useful effects in these and other diseases.—*Rev.*

stage of Typhoid fever, is best combated by the use of Camphor and Opium, along with an occasional blister to the neck. This latter remedy will generally succeed in removing that intense headache which not unfrequently afflicts Typhus patients, during the convalescent stage.

Anasarca and *Ascites* are occasional consequences of fever. One of the best remedies is the Chlorate of Potash, in doses of 15 or 18 grains every four or six hours. Covering the dropsical limbs with oiled silk has seemed to promote the good effects of internal medication. We have rarely used Digitalis or other diuretics, as the chlorate has generally proved quite sufficient for the cure of the disease; it has this great advantage over most remedies, that it generally improves, rather than impairs, the digestive function.

Salivation is apt to be a troublesome consequence of the administration of mercury in fever, at least in certain constitutions. No remedy has in our hands proved more useful against this distressing accident than the application of two or three leeches under the lower maxilla: the symptoms usually subside rapidly and effectually under this simple treatment. A gargle made with alum, or camphorated spirits of wine, will also be found very useful in many cases.* Mild saline aperients at the same time may be given with advantage.

PHILOSOPHICAL ANATOMY.

M. *Serres* remarks that, " a general law of Nature is, that the various organisms become more and more decomposed and subdivided (fractionnées), in proportion as we descend in the animal scale from Man to the lower Invertebrata. By this fractionary division, the complexity of certain organisms—which in Man and the higher Vertebrate animals are often so inextricable—becomes more and more simplified, so that, in the creatures at the bottom of the zoological scale, we find them reduced to their most elementary configuration. Another Law, of not less general application, is that, if we follow the development of a complex organism—through its successive stages or phases of evolution—we find that it appears first in a state of remarkable simplicity; and that each successive transformation, which it undergoes, renders it more and more complex, until it arrives at its perfect and matured development.

But this is not all: for, if we compare the organology of the lower and more simple animals with the primary development of the higher Vertebrata, we discover numerous examples of a marvelous analogy.

All the various methods, which anatomists employ to unravel the intimate texture of any organ, serve only to bring it back to that more simple condition, in which it existed at an early period of its development. Whether we use the scalpel, or trust to maceration, or erosion with acids, &c., these means act only by destroying the cementing medium or bond of union, which holds the constituent parts together in one whole."

ANALOGY BETWEEN SOME MONSTROSITIES AND THE LOWER ANIMAL FORMS.

" In several respects, there is no inconsiderable analogy between the normal and mature configuration of many of the Invertebrate animals and the structural

* A blister to the throat and a gargle of brandy and water are *the* remedies for troublesome salivation.—*Rev.*

Anomalies, or—as they are usually called, Monstrosities—of the Vertebrata. Thus, several of the Polypes are *anenteric*, i. e. destitute of an intestinal canal; so are the Moles, which are not unfrequently discharged from the uterus. In other cases, we find the anterior part only of the alimentary tube to be present: a similar configuration has been often met with in imperfectly-formed embryotic productions. It is well known that some monsters are Acephalous, while others are entirely destitute of a heart. We need scarcely say that the Analogues of these conditions are frequent in the members of the lowest animal groups. Such privations of organs are indeed incompatible with the extra-uterine life of Vertebrate animals; but let it not be forgotten, that the imperfectly-formed Being was alive while in the womb of the mother; it had passed through a certain stage of existence, and had already completed its life as an invertebrate animal."

THE PROCESS OF SECRETION.

The following extract from Dr. *Mandl's* recently published "Manual of General Anatomy applied to Physiology and Pathology," deserves notice, as bearing on the important Doctrine of Cell-formation. "The greater number of the fluids, which constitute the basis of the different secretions—such as the gastric and intestinal juices, the saliva, tears, milk, mucus, wax of the ears, fat, &c.—proceed from a gradual dissolution of the substance of the very glands, which are generally supposed to eliminate them. The Blood, no doubt, furnishes certain elements for each secreted fluid; but that, which constitutes the characteristic constituent of each secretion, is the fluid contained in the microscopic *cells*, which enter into the formation of every gland:—this fluid is poured out in consequence of either the bursting, or the dissolution, of the cellular envelopes. The *Cells*, which along with the *blastema* constitute the parenchymatous substance of glands, are developed within the minute secreting canaliculi. When they have attained to a certain degree of maturity, they detach themselves from the interior, and are carried along in the secreted fluid."

FRACTURE OF THE BASE OF THE SKULL FROM FALLING ON THE FEET.

The following very interesting case recently occurred in the practice of M. *Robert* at the Hospital Beaujon. A middle-aged robust man fell from a height of 35 feet, and alighted direct upon his feet: this was on the 24th of May. He was stunned a little at the time, but experienced no other inconvenience. Next day he resumed his work as usual. On the fourth day, he complained of a severe pain in the right ear, and of not being able to sleep. After the lapse of three weeks from the date of the accident, a very intense headache came on; and then, for the first time, the right eye was observed to be turned inwards. He entered La Pitié hospital, where he was treated by M. *Nonat* with venæsection, leeches, blisters and morphia. On leaving this hospital, he entered the Beaujon hospital. The severe headache still continued; but there was no symptom of paralysis either of the motory or sensory functions. He remained nearly in the same state —without either aggravation or amendment of the symptoms—until the 20th of September, when he was seized with violent Delirium. He was immediately bled and leeched, but without avail; for he died within 24 hours after the attack—three weeks after his admission into the Beaujon hospital, and nearly four months after the occurrence of the accident. On *Dissection*, the two clinoid processes were found separated from the body of the sphenoid bone. The petrous portion of the right temporal bone also was fractured across, and a tolerably-sized piece

fairly detached. The Brain and its envelopes appeared to be little, if at all, affected; but the sixth pair of nerves was lacerated at the seat of the fracture.—*L'Experience.*

CASE OF ELEPHANTIASIS, OR BARBADOES LEG.

M. *Cazenave* relates a case of this disease, which occurred in a middle-aged woman, whose general health appeared to be quite sound, but who had suffered two or three attacks of Erysipelatous inflammation in the right (the affected) lower extremity. The limb had acquired an immense size, when she was admitted into St. Louis Hospital; "the leg and thigh, confounded together, resembled a huge shapeless pillar, without any distinction of parts." The skin was uniformly hard and resistant; but it did not present to the touch any traces of indurated cords or ganglia. The patient complained of no pain or tenderness, but only of a sensation of unpleasant coldness in the part; and she found great difficulty in keeping it warm. M. *Cazenave* directed her to take a strong decoction of Guaiacum and Mezereon; to use vapour baths; to rub the leg with the Ung. hyd. potassæ; and to have it bandaged from the toes upwards: absolute rest also in bed was enjoined. This mode of treatment was persevered in from the 9th of August to the 28th of November, at which date the patient was discharged almost completely cured.

What is the proper pathological character of such a case as this? M. *Cazenave* says that "it is a simultaneous or successive affection of the skin, the cutaneous lymphatic vessels and glands." This is certainly not a very satisfactory explanation. Is it not rather an infiltration of a viscid serum into the subcutaneous Cellular tissue, producing distention, and ultimately thickening and induration, of the skin? Whether the primary lesion be an affection of the lymphatic vessels or not, we cannot as yet decide: but it is abundantly obvious that an analogy may be traced between this kind of Elephantiasis and the Phlegmasia alba dolens of puerperal women.

(The practice, adopted in this case, appears to have been extremely judicious. The Guaiacum and Mezereon often exert a very marked influence on the cutaneous circulation, stimulating the exhalants, and invigorating the capillary vessels: hence they are excellent remedies in many cases of chronic skin-disease, rheumatism, &c.)

LEPROSY IN SARDINIA.

From an official report on this subject, recently published by order of the Sardinian Government, we learn that there are, at the present time, upwards of 100 cases of genuine Leprosy in the different provinces of the kingdom. The disease is said to be decidedly contagious, at least in its advanced or suppurative stage—when it seems to be communicable not only by contact with a diseased individual, but also by his wearing-apparel. Cases of this loathsome malady are occasionally met with in the Southern provinces of France also, as in some parts of Provence, in the neighbourhood of Marseilles, &c. Dr. *Trompeo*, who was employed by his government to report upon the subject, states it as his opinion that the Leprosy, as seen in Sardinia at the present time, is essentially the ancient disease of the Egyptians and Greeks, modified indeed somewhat by lapse of time and the influence of modern civilization. In a few cases, the patients exhibited each and every one of the symptoms and characters of the genuine Leprosy, such as we read of in the authors of antiquity.

THE VALERIANATE OF ZINC—A NEW ANTISPASMODIC.

"Since the beautiful researches of Prince *Louis Buonaparte* on the preparations of Valerianic Acid, a most useful and potent remedy for a variety of nervous affections has been introduced into medical practice. The Valerianate of Zinc is easily formed by adding the protoxide of the metal to the vegetable acid, until this be saturated: the salt is obtained by slowly evaporating the solution. The dose is one or two grains at a time, taken in the form of a pill. It has been used with very decided advantage in various forms of Neuralgia by several Italian physicians, as we find recorded in a late Number of the *Bulletino delle Scienze Mediche*.

(Supposing that this new salt be really useful in the cases alluded to, is it likely to have the same efficient virtues as the Ammoniated Tincture of Valerian—a truly excellent anti-neuralgic—with the white Oxyde or the Sulphate of Zinc? We should think not.)

INOCULATION OF VERATRIA IN NEURALGIA.

M. *Lafargue* has, in many cases of Prosopalgia, had recourse to this endermic mode of treatment with singularly-good effects. The plan he follows is nearly the same as that used for Vaccination: a number of punctures are made with the point of lancet, that has been charged with a saturated solution of the Alkaloid. Each puncture becomes at once the seat of a sharp pain, which is usually compared by the patient to a continual deep pricking with the point of a needle. This unpleasant sensation lasts from five to fifteen minutes, and then gradually subsides; and, with it, the red areola that has formed around the punctured spot. M. *Lafargue* recommends, in severe cases, that the inoculation be repeated morning and evening; and that as many as ten or twelve punctures should be made at a time. He has used the same method of treatment with decided good effects, in several cases of partial Paralysis. (This simple and elegant mode of using Veratria might possibly be of considerable service in some cases of Amaurosis.)

NUX VOMICA IN NEURALGIA.

M. *Roclants*, a Dutch physician, reports most favourably of the effects of this potent drug in severe cases of Neuralgia of the face and other parts, and communicates at the same time the therapeutic results obtained by many of his professional friends. Out of 29 severe cases, a perfect cure was effected in 25, and decided relief was afforded in the other four. The dose, in which the powdered Nux Vomica was administered, was from three to ten grains, and upwards, in the course of the twenty-four hours. In all cases its effects should be narrowly watched, as unpleasant consequences have occasionally resulted from incaution on the part of the physician. M. *Roclants* is inclined to regard the Nux Vomica as, on the whole, the most efficient and certain remedy against severe Neuralgia; he has seen several cases, which had resisted the prolonged administration of steel, bark, and all the other most approved means, yield to its use.

M. *Trousseau* has recently been very strongly recommending the Strychnos as a most valuable remedy in obstinate Chorea.

Utility of Musk in certain Cases of Delirium.

It is M. *Recamier*, we believe, who has most strongly advocated the use of this powerful antispasmodic in certain forms of Delirium, occurring in the course of various febrile and inflammatory diseases. When Pneumonia, as in certain constitutions, and in certain epidemics, is accompanied with marked symptoms of cerebral disturbance,—a very embarrassing complication—the use of Musk, either alone or in combination with Calomel, has been often found to be of decided advantage. It is also very useful in the delirium which not unfrequently attends the course of Erysipelas, and several other exanthemata; more especially in small-pox, during the maturation and desiccation of the eruption.

Dr. *Roche* of Strasbourg has recently published several very instructive cases in illustration of this practical point. The first was one of Erysipelas of the face and head; the second of gangrenous Sore throat; the third of Scarlatina; and the fourth of Variola. In all these, the Musk appears to have acted very beneficially. He adds: "I have employed it also in two cases of furious Mania; the violent agitation was arrested; but no other good was produced. It completely failed in a case of grave Typhoid fever, and also in one of acute Bronchitis, accompanied with delirium, which occurred in a middle-aged man of very intemperate habits." He closes his observations with the following general remark: "It appears to me that the administration of Musk is indicated whenever, in the course of acute diseases, Delirium supervenes without any distinctly appreciable cause, and the severity of which is not commensurate with that of the primary disease. In very many cases, I have had the satisfaction of witnessing cures, which I could not certainly have anticipated before my acquaintance with this most valuable remedy. The first effect, which it usually produces when successful, is to induce a quiet refreshing sleep, and a general tranquillizing influence over the entire body: sometimes it induces slight nervous twitchings in the eyelids, the extremities, &c."—*Journal des Connaiss. Med. Chir.*

Remarks.—Musk is unquestionably one of the most potent, and least fallible, antispasmodics that the Pharmacopœia contains: the only drawback to its general use is its expense. Fortunately Assafœtida, Galbanum, and good Castoreum may very generally be substituted for their more costly analogue. In all cases of nervous agitation, unconnected with plethoric and inflammatory excitement, this class of antispasmodic medicines may be used with advantage. Camphor also is a very potent member of the same family; and few compounds are more beneficial than pills composed of musk or assafœtida and camphor,—to which a few grains of Calomel, and also some extract of Henbane, may often be most judiciously added. We have witnessed most pleasing effects from this formula in several cases of puerperal Mania.—*Rev.*

M. Velpeau on the Use of the Nitrate of Silver in Ophthalmia.

The following is a summary of this ever active surgeon's opinions on an important point of practice.

1. The Nitrate of Silver is unquestionably the best local application that can be used in a great many diseases, acute as well as chronic, of the Eye.

2. In various kinds of Blepharitis, the nitrate is most advantageously used in the form of pommade.

3. In inflammation of the lids, the direct application of the solid caustic is usually attended with the greatest benefit.

4. For the slighter forms of Conjunctivitis, a weak solution of the salt in dis-

tilled water is best. In the purulent form of the disease, the solution must be used considerably stronger; but the solid nitrate is not unfrequently found to suit better in such cases.

5. In the treatment of the different forms of Ophthalmic inflammation, it will often be found of great utility alternately to increase and diminish the strength of the application—whether this be in the form of ointment or of solution.

TARTRATE OF ANTIMONY IN INJURIES AND OPHTHALMIA.

Professor *Lallemand* of Montpellier has long been in the habit of using the tartrate, administered in large doses, in numerous cases of wounds, traumatic lesions, inflammation of the eye, joints, &c. when the object is to subdue inflammatory excitement, without permanently impairing the strength of the patient. This is often the aim and desire of the surgeon, in hospital practice more especially; and indeed whenever he has to do with persons whose constitutions may have been enfeebled either by insufficient diet, or by intemperate habits. Several cases of severe Purulent Ophthalmia are related, wherein the antimonial treatment was attended with the most pleasing results, even after the use of mercury had been pushed to a great extent, but without avail. The Professor recommends the application of blisters to the nape of the neck at the same time. In this way a powerful revulsion from the affected organ is established, while the activity of the general circulation is subdued.

M. GERDY ON CONGENITAL LUXATIONS.

"These deformities are attributable to a malformation, or abnormal condition, of articular development, which either prevents the bones from being articulated with each other at all, or which favours their displacement, when the articulation really exists. In some cases, therefore, there can be no proper luxation, because there is no articulation; while, in other cases, the luxation is apt to occur—either before or after the period of birth—from the very slightest causes, in consequence of the imperfect development of the articular mechanism. When the malformation affects the hip-joint, we usually find, on dissection of the parts, that the cotyloid cavity is either too wide or too narrow: or that the head of the femur is excessively large or diminutive; or that its cervix has a faulty direction, or has become agglutinated to the coxal bone; or that the round ligament is absent, divided, or excessively elongated; or that there is some deviation of the pelvic bones, or an abnormal configuration of their structure; or, lastly, that there is some lesion of the vertebral column."

ON THE PARALYTIC AFFECTIONS OF INFANCY.

M. *Serres* remarks, that the Paralytic Affections, which are occasionally met with in infants and young children, are often owing to an arrest in the normal development of the parts affected; or to a want of harmony between the development of the bones and that of the muscles; or to an over-rapid growth and increase of one section—as, for example, of the upper half—of the body, compared with the growth and increase of another. The febrile diseases of infancy and childhood not unfrequently leave behind them a loss of motion, and some-

times of sensation also, in one, or more than one, limb.* The convulsions, which so often arise from the presence of worms in the bowels as well as from other morbid states in early life, may be followed by a similar affection of the muscular and nervous systems. After the exciting causes have been once removed, the use of Strychnine, externally as well as internally, has been adopted with advantage. Cold bathing and the exhibition of steel are also very serviceable in many cases.

Of the Cause of Rabies in the Dog.

It is no new idea that this frightful malady is attributable, in the case of the dog, to the forced deprivation of sexual intercourse. But—as M. *Taffoli* (in one of the numbers of the Annali Universali di Medicina, for last year,) observes,—however just this hypothesis may be in principle, it is obvious that it must not be insisted upon too peremptorily or unreservedly; for we well know that a multitude of dogs are continually in a state of unnatural celibacy, and yet the disease in question is far from being of very common occurrence. We may therefore very reasonably suppose, with this gentleman, that the animal must be previously predisposed, somehow or other, to its development. "Observe," says he, "around a bitch in *heat*, the dog that is the most excited; it is usually an animal of *sagacity* and *sentiment*, and of a quick and choleric temper. If this animal be thwarted and prevented from indulging the sexual desire, we may almost with confidence predict that it will be in him, if in any, that Rabies will make its appearance!"

Nævi treated by Inoculation with Croton Oil.

A correspondent of the French Academy recommends, that five or six punctures be made, on the surface and around the circumference of *Nævi Materni*, with a lancet charged with Croton Oil—used, therefore, in the same manner as the vaccine lymph has been recommended for the same purpose. Each of the punctures becomes the seat of a small boil. From the coalescence of the several furuncular pustules, the whole of the erectile tissue is affected in the first instance with an inflammatory, and, subsequently, with a suppurative and ulcerative action. The writer does not mention whether he has ever realised his idea, or put it to the test of actual experience.

Chloruretted Lotions in Confluent Variola.

Dr. *Bailleul* strongly recommends the application of chloruretted lotions to the skin, throat and nasal passages, in severe cases of confluent Small-pox. He is

* Sir *Walter Scott's* case seems to have been of this kind. In his autobiographical sketch, he says:—"I showed every sign of health and strength, until I was about 18 months old. One night I showed great reluctance to be caught and put to bed, and, after being chased about the room, was apprehended and consigned to my dormitory with some difficulty. It was the last time that I was to show such personal agility. In the morning I was discovered to be affected with the fever, which often accompanies the cutting of large teeth. It held me three days. On the fourth, when they went to bathe me as usual, they discovered that I had lost the power of my right leg."

of opinion that they serve to decompose the purulent matter in the pustules, and thereby to counteract the tendency that often exists to cutaneous and pulmonary Asphyxia, by neutralizing the noxious agency of the purulent matter on the cutaneous and mucous surfaces. The fever of resorption—or Secondary Fever, as it is usually called—is thus rendered much less formidable; and, moreover, the emanation of poisonous effluvia from the body is in a great measure arrested. Considered as local applications, the chlororetted lotions refresh and re-invigorate the vital properties of the skin, and tend also to promote the cicatrisation of the greyish-coloured ulcers which line the bottom of the variolous pustules. The practice here recommended may be expected to be of especial utility in prisons, hospitals, on board ship, &c., where patients are apt to be crowded together, and the danger of infection is therefore to be most dreaded.

German Hydropathic Journal.

We have received three Numbers of the "Neuer Wasserfreund" (New Water-friend) edited by Dr. *Schmitz*, the superintendent of a sluicing establishment at Marienberg. As a matter of course, they are almost entirely taken up with long lists of cures and recoveries effected by the "Priessnitzschen Heilweise," and are therefore not worthy of any notice from us; the object of the contributors being mainly to advertise their success. There is a brief notice, in one of the Numbers, of some English pamphlets and books on the subject, and, among others, of Sir *Charles Scudamore's* "Visit to Graefenberg." Dr. *Schmitz* is a politic man; he lauds the Knight as one of the most distinguished physicians of the British metropolis, and extracts a laudatory notice of himself from the credulous Knight's good-natured pages! He then, as a finale, gives a list of the cures performed at his establishment during the preceding nine months: among numerous Kaufmanns, Rentners, Herrs, Fraus and Frauleins, figures conspicuously Herr *Mayo*, professor of Surgery and Operator from London! Is not the ex-surgeon of the Middlesex Hospital an attaché, or perhaps a part proprietor of Dr. *Schmitz's* establishment? We surely saw a notice to this effect in some recent periodical.

Urethral Pains relieved by Compression.

M. *Vidal*, struck with the well-known fact that patients often succeed in relieving themselves of severe pain in the urethra by firmly compressing the penis, thought it probable that, by employing a more uniform and prolonged pressure, greater benefit might be obtained. With this view, he recommends that the penis be encircled with numerous strips of adhesive plaster; and assures us that he has witnessed excellent effects from this simple plan. (In the course, and towards the decline, of Urethritis, there is often experienced a most distressing pain about the neck of the bladder, immediately before and after the expulsion of the urine: it appears to arise from a spasmodic contraction of the sphincter and the detrusor muscles. By far the most decided and speedy means of relief is firm compression, with the hand, of the perineum in front of the anus.)

Asphyxia induced by an Excessive Quantity of the Amniotic Fluid.

Dr. *Bevrat* of Lyons reports, in his Recherches Medico-Chirurgicales recently published, five cases of Asphyxia in pregnant women, which seemed to him to be

induced by an excessive quantity of intra-uterine fluid. In three of the cases, the symptoms were relieved by puncturing the membranes with the finger, and thus giving issue to the superabundant quantity of amniotic water. In one case a trocar was introduced, as in the ordinary operation of paracentesis, at the usual place, and a similar result was obtained. In the last case the patient died, before relief was procured. On opening the uterus after death, it was found to contain upwards of thirty pints of fluid. In all these cases, the women had reached nearly the full term of pregnancy.

POMMADE FOR CHAPS AND FISSURES OF THE TOES.

One of the most annoying effects of secondary Syphilis is the formation of fissures on the internal surface of the toes: they are usually very painful, are surrounded with a red areola, and secrete a syphilitic matter. In a few cases, gangrene has been known to supervene, and to destroy one toe after another. An ointment, containing litharge, white precipitate, and a few drops of laudanum, has been used with very marked success in such cases, in many of the hospitals of Germany. It is, also, much recommended in the serpiginous and phagedænic ulcers, which occasionally supervene upon vaccination in children of a scrofulous or syphilitic constitution. The process of cicatrisation is often promoted by bathing the sores, at the same time, with a decoction of hemlock and marsh-mallows.

PHARMACEUTICAL FORMULÆ.

1. *Anodyne Pommade.*

Take of, Galen's Cerate	31 parts,
Extract of Belladonna	8 ——
Acetate of Morphia (previously dissolved)	3 ——

Mix well together.

This Pommade is exceedingly useful in cases of muscular pains, chronic rheumatism, &c. when rubbed on the affected parts.

2. *Ustiocure Cream.*

The following preparation has produced, in my practice, 'de si beaux, de si constants succes' in cases of Burns, that I have great confidence in recommending it to my medical brethren.

Take of, Chloruret of Lime,
The White Oil of Commerce,
of each, Equal parts,

Blend them well together, to make a smooth ointment. It should be applied on fine linen, or (what is better) on taffetas that is 'gommé et fenetré.'

3. *Lozenges, &c. of Copaiba.*

Take 30 parts of Copaiba Balsam and 12 parts of Calcined Magnesia; mix them well together, and set the mass aside for 24 hours; then divide it into portions of a suitable size, and roll them into proper shape between the fingers. They are then to be put into a tin basin, and after being sprinkled first with gum water and then with powdered sugar, to be well shaken about for some time. When sufficiently crusted over, they are to be placed upon a hair-sieve, and dried in a stove.

4. *Anti-scrofulous Syrup.*

Take of,	Cod Liver Oil	125 parts.
	Extract of Walnut-leaves	45 ——
	Honey	735 ——
	Ioduret of Potassium	6 ——
	Tincture of Quinine	6 ——
	Syrup	1000 ——
	Essence of Aniseed	240 ——

Mix slowly and well together.

The nauseous taste of the cod-oil is disguised, while its anti-scrofulous properties are aided by the other substances combined with it.

ON THE PROPER AGE FOR FEMALES TO MARRY.

M. *Raciborski*, in his recent elaborate Memoirs on this subject, makes the following curious observations:

"M. *Marc* says—and we think that he is quite right in the statement—that the strength and the vigour of the offspring are more dependent upon the state of the mother's than of the father's constitution. The eggs, for example, of very young hens are always small, however lusty be the cock that has fecundated them. The same holds good in the case of Calves, Colts, &c.

According to the tables in the late Mr. Sadler's work, the average offspring of each marriage in England, when the mother is below 16 years of age, is 4,40; when her age is from 16 to 20, it is 4,63; when from 20 to 23, it is 5,21; and when from 24 to 27, it is 5,43. If these calculations be correct, they afford the most convincing evidence that, not only the number, but also the strength and *viability*, of children born, are much influenced by the age of the mother. According to our views, the interval between the 20th and 24th years is the most advisable for marriages among the women of this country (France.) The testimony of an accomplished female writer on the education of young persons may be aptly quoted here. "We are in the habit of marrying our daughters so young," says *Madame de Remusat*, "that they really have not had the time to look at or understand anything in its proper light. If established usages could be suddenly broken through, and if we were to consult Nature more in our matrimonial arrangements, I believe that the age of 25 years, or so, is that which would be considered most advisable for young women to marry. But, alas! there is little hope that Fashion will recognise so great a change in her customs as this. We should at least wait till a girl has passed her 20th year; and meanwhile everything should be done, by a judicious system of education, to hasten on the maturity of her reason."

Spirit of the British and American Periodicals.

PHYSIOLOGY.

ON THE CIRCULATION OF THE BLOOD IN ACARDIAC FŒTUSES, (with a Wood-cut); being a Reply to a Paper by Dr. Marshall Hall on this Subject. By JOHN HOUSTON, M. D., M. R. I. A., Surgeon to the City of Dublin Hospital, &c.

The *quæstio vexata* regarding the *cause* and the *mode* of the Circulation of the Blood in acardiac fœtuses forms the subject of this very interesting paper by Dr. Houston. At the meeting of the British Association in 1836, Dr. Houston made a report of an examination of a case of this kind, which had come under his notice, and stated therein the physiological conclusions which he considered to be fairly deducible from it. The correctness of these conclusions has been questioned by Dr. Marshall Hall.* We shall submit to our readers a condensed view of the arguments respectively advanced by these distinguished physiologists on this curious and really important subject. The pith of Dr. Houston's conclusions on the matter is, that the circulation in question is accomplished by the agency of the capillary vessels. Dr. M. Hall, on the contrary, who by the way has been always a warm stickler for the theory, that in every instance the heart affords the propelling force which circulates the blood through the capillary vessels, will have it that the circulation in the acardiac fœtus is accomplished by the agency of the heart of the perfect fœtus, by which the acardiac fœtus is uniformly accompanied. It may be as well to premise that the late Dr. Young first suggested the idea that the circulation in the acardiac fœtus is effected by the power and agency of the heart of the perfect fœtus; and that the late Sir A. Cooper thought he had proved this fact by the discovery and demonstration by injection of the actual vessels by which the anastomosis between the vessels of the two fœtuses had been carried on, and which, although presumed to exist, had not been fully made out by preceding experimenters. On this discovery of a vascular anastomosis between the vessels of the placentæ Dr. Marshall Hall founds his theory of the influence of the heart of the remote fœtus in conducting the circulation in its acardiac companion. These anastomoses between the chords of the two fœtuses, as ascertained by Sir A. Cooper, were both arterial and venous —large branches of the umbilical arteries of the perfect fœtus running to join the umbilical artery in the chord of the imperfect one, so that the blood of the two fœtuses must have been capable of freely passing from the one fœtus to the other, according as the determining influences in the one or the other might preponderate.

Dr. M. Hall agrees with Dr. Houston in rejecting Sir A. Cooper's explanation, that the blood is propelled along the anastomosing branch of the umbilical artery directly to the imperfect fœtus, as that would be contrary to the ordinary course the current in the arteries of that fœtus, and would involve an inversion of the circulation in the placenta. Dr. Hall, however, still wishing to retain for the heart the character of being the prime mover, supposes that the stream of blood propelled by the heart through the anastomosing branch discovered by Sir A. Cooper, meeting that coming along the umbilical artery of the

* See London and Edinburgh Monthly Journal of Medical Science, Vol. VI. p. 541.

acardiac fœtus, carries with it that languid stream by what he terms a "lateral action," forcing it, by the greater velocity of its current, into the capillaries of the placenta, and thence, again, still farther through the umbilical vein into the body of the monster. No objection, Dr. Houston admits, need be taken to Dr. Marshall Hall's theory, so far as the simple act of assisting to propel the blood into the placenta goes, farther than its insufficiency, of itself, to that end. But, beyond this point, the influence of even this moiety of the heart's power must cease to be directed in a manner calculated to complete the circulation in the imperfect fœtus, as suggested by Dr. Marshall Hall; for the blood-vessels of the latter come now to be out of the direct line of its influence, the line of vascular continuity being broken in the placenta.

Dr. Houston now adduces an argument which we think completely decides the fate of Dr. M. Hall's theory of the exclusive power of the heart in carrying on the circulation in the acardiac fœtus; it is founded on the fact that the artery of communication from the perfect fœtus, on which Dr. M. Hall lays so much stress, as being capable of propelling, by "lateral action," the blood of the imperfect fœtus into its placenta, is accompanied by a corresponding vein of even more than proportionate size, which equally, on the same principle of "lateral action," must bring that blood back again in the same direction.

The suction-power of the heart will attract to itself the blood received into the capillaries of any vein within the range of its influence, rather than permit it to flow off in a new direction for the development and growth of another and distinct being, more especially if the blood-vessels of that being be not, as Dr. M. Hall teaches, endowed with any innate power of attraction for that fluid. The perfect fœtus would then by its heart take to itself back again all the disposable blood within its reach, and thereby become the instrument of depriving its acardiac twin companion of its supply, rather than of adding to its store. In a word, the existence of this great vein, in such a situation, seems entirely to upset Dr. M. Hall's theory. If it were not present, then there would be no other course for the blood arising out of the placenta, but that along the umbilical vein of the chord into the body of the acardiac fœtus, and in such event the circulation would be analogous to that in the vena portæ; but while there, it must, on the hydraulic principles laid down by Dr. M. Hall, perform a function entirely subversive of the power of the distant heart over the blood circulating in the branches of the umbilical vein in the body of the acardiac fœtus.

In fact, the existence of the circulation in this acardiac twin, in spite of such a drawback upon its fulfilment, appears suited more as an argument in favour of the theory of independent vascular action, as advocated by Dr. Houston, than of that of Dr. M. Hall, which attributes the whole, exclusively, to remote cardiac influence. Indeed, the reasoning founded on mechanical principles, employed by Dr. M. Hall to prove the efficiency of the heart of the perfect fœtus in carrying on the circulation in the acardic fœtus, would go to prove that the blood in the placenta of the imperfect fœtus, must be attracted to the perfect fœtus by the power and action of the heart of the latter; in as much as if the circulation be conducted on mechanical principles, according to Dr. M. Hall's own showing, the same laws which regulate it in one stage of its progress, must be equally applicable to it in another; and the inevitable result would be, that the passive acardiac fœtus would be absolutely drained of every drop of its blood by the mechanical action of the heart of its more highly-favoured companion. It may be here observed, that the supposed importance and value of the anastomosis in acardiac fœtuses, on which Dr. M. Hall entirely rests his theory, is not a little diminished by the fact of the occasional occurrence of such anastomoses in natural and perfect twin cases, cases wherein no such use for anastomosis can be supposed to exist. In reply to a call on the part of Dr. M. Hall for "farther evidence" of acardiac circulation in "lower animals," Dr. Houston states that "the currents of red blood in the arteries and veins of certain worms, the well-

arranged vascular apparatus of the larva and perfect insect of certain neuropteræ, together with the perfect circulating systems of plants,—all carried on without assistance from any heart-like agency whatever, afford examples of innate vital powers in the circulating vessels, disproving the correctness of Dr. M. Hall's assertion, that we are destitute of all proof that these vessels themselves have any such power." Dr. Houston adduces several phenomena which present themselves daily in the course of both physiological and pathological investigations, and which lead to the same conclusions with respect to the existence of innate vital powers in the circulating vessels.

We now conclude our notice of Dr. Houston's interesting paper, by stating our opinion that he has clearly proved his case, notwithstanding Dr. M. Hall's assertion to the contrary, that "the heart is not the *sole* agent by which the blood is circulated through the body, and that we have good evidence for the belief, that the blood-vessels themselves are possessed of a considerable power to that effect." What this considerable power may be, is not yet explained. Dr. Alison has employed the terms "vital attractions and repulsions" to express the existence of some such inscrutable principle, the effect of vitality in the capillaries, and probably in the blood itself, by which this fluid is made to circulate through the body, independent of the action of a heart. It is unnecessary to point out the importance of these views in connexion with the subject of inflammation.—*Dublin Journal*, Jan. 1844.

ON THE ALLEGED INFECUNDITY OF FEMALES BORN CO-TWINS WITH MALES: WITH SOME NOTES ON THE AVERAGE PROPOPORTION OF MARRIAGES WITHOUT ISSUE IN GENERAL SOCIETY. By JAMES Y. SIMPSON, M.D. Professor of Midwifery, &c.

Dr. Burns states it, as a popular opinion, that, if twins be of different sexes, the female is sterile. Dr. Simpson, some years ago, took considerable pains in testing the correctness of this opinion. Mr. J. Hunter, in 1779, showed that when, among black cattle, the cow brings forth a male and female at the same birth, the male is a perfect bull-calf, and the apparent female is almost always imperfect in its sexual organization. Female cattle of this kind are distinguished by the name of free-martins. The defective sexual organization of free-martin cattle is attested both by their sterility, observed during life, and by the anatomical examination of their sexual organs. The sterile character of free-martins is well-known among butchers and agriculturists. This infecundity, however, is by no means a universal fact. This law of infecundity Dr. Simpson has ascertained not to hold good with respect to the females of opposite sexed twins among sheep. This prejudice in reference to the infecundity of human females, born co-twins with males, has probably been derived from the analogy of the free-martin cow. Now the truth or falsity of this opinion, can only be settled by an appeal to a sufficient number of accurately ascertained histories of cases. Dr. Simpson proved, by reference to the various Lying-in Hospitals of Edinburgh, Dublin and London, in opposition to the opinion of Sir Everard Home, as expressed in his Comparative Anatomy, that twins of opposite sexes are by no means uncommon.

Mr. Cribb, in the London Medical Repository, for 1823, has adduced the histories of 7 married women who were born co-twins with males: the following is the result: six had a family, and one had no issue. Dr. Simpson succeeded in obtaining the most satisfactory information with respect to 113 females born under the circumstances now in question; of these 113, 103 had a family; 10 had none; that is, about 1 in 10 had no issue. The history of the male co-twin in the 103 cases in which the female was productive, was as follows:

in 53 he was a father; in 24 he died in early life, or unmarried: in 8 he remained unmarried; in 2 he was married, but had no issue; and in 14 his history could not be ascertained. Dr. Simpson also traced the married history of the female in four instances of triplets, in which there were born either two males and one female, or two females and one male. In all these 4 cases the female had a family. In a case of quadruplets, in Medical Reposit. for 1827, there were three males and one female. The female became the mother of triplets. With respect to the matter in question, it may be stated, that of 123 females born co-twins with males, 112 had a family, and 11 none; in other words, the marriages were *unproductive in the proportion of one in ten.*

Before we determine whether this result supports or not the popular opinion, already stated, Dr. Simpson considers it necessary, and very properly so, to inquire what is the average proportion of productive and unproductive marriages in general society. In reference to this question, Burdach states, that one marriage only in 50 is unproductive. Dr. Simpson had a census taken of two villages, Grangemouth and Bathgate, the one consisting chiefly of sea-faring people, the other of an agricultural and manufacturing population. Results:—of 210 marriages in Grangemouth, 182 had offspring: 27 none—1 in 10. Of 402 marriages in Bathgate, 365 had offspring: 37 had none; that is, about 1 in 11 was unproductive. In order to extend the basis of data, Dr. Simpson analysed the history of 503 marriages in the British Peerage, and found 18 the total number of unproductive marriages among the original 503: that is, the proportion of the unproductive to the productive marriages is nearly as 1 in $6\frac{2}{7}$. Now we have seen the marriages of females born co-twins with males are unproductive in the proportion of 1 in 10; so that they do not, in this respect, exceed the degree of unproductiveness of marriages in other portions of the general community. Dr. Simpson next inquires, what is the average productiveness of marriages in general, and does that of the female in opposite-sexed twins come up to the common standard? The results of his inquiries have now turned out as follows:—

1. That, in the human subject, females born co-twins with males, are, when married, as likely to have children as any other females belonging to the general community.
2. That such persons are just as productive as other females.
3. That the same law of fecundity of the female in opposite-sexed twins, holds good among all our uniparous domestic animals *except the Cow.*

PROFESSOR MULDER ON THE EXISTENCE OF OXIDES OF PROTEIN IN THE BLOOD. PHYSIOLOGICAL INFERENCES—THEORY OF INFLAMMATION.

Professor Mulder, well-known for his discovery of protein, which he regarded as the essential constituent of the various albuminous products and tissues of the animal economy, has some time since discovered and announced the existence of two oxides of protein in the blood. He has also presented some speculations with respect to the part these oxides play in producing certain of the phenomena of inflammation. These oxides are first, a deutoxide consisting of 1 protein + 2 oxygen, and a tritoxide, consisting of 1 protein + 3 oxygen; the first is soluble, and the second insoluble, in water. The two compounds are known by the generic term *oxyprotein.* The oxides are obtained by boiling fibrin or albumen, procured from either healthy or inflamed blood, or coagulated white of egg, for a certain number of hours, in successive portions of water; by this process, the matter experimented on is divided into two portions, one soluble, the other insoluble in water. Both contain less carbon, hydrogen and nitrogen than fibrin or albumen, but more oxygen; therefore, the latter must

have been absorbed during the boiling. On evaporating the watery solutions an extract is left, which is partially taken up by alcohol—the part of the matter experimented on, which is insoluble in water, and that part soluble in the latter, but not taken up by the alcohol, are the results of oxidation. Repeated experiments showed that the substance, soluble in water, resulting from the oxidation of protein was precisely identical, whether obtained from fibrin or albumen. On boiling the buffy coat of inflamed blood in water, and submitting the matter dissolved to analysis, it is found to be constituted precisely the same as the soluble bodies formed by the oxidation of albumen and fibrin by boiling.

To this body Mulder assigns the formula $C_{40}\ H_{32}\ N_5\ O_{16}$. By comparing this with the formula for protein, it will be seen that this body is a hydrated tritoxide of proteine.

	Carb.	Hyd.	Nit.	Ox.
1 Equivalent of Proteine =	40 +	31 +	5 +	12
3 " Oxygen =				3
1 " Water =		1		1
	40 +	32 +	5 +	16

The composition of the insoluble matter, into which fibrine is converted by ebullition with water has been thus represented:—$C_{40}\ H_{31}\ N_5\ O_{14}$. By comparing this with the formula for protein, we shall find its constitution to be a binoxide of protein.

	C.	H.	N.	O.
1 Equivalent of Protein =	40 +	31 +	5 +	12
2 " Oxygen =				2
= Binoxide ($Pr_1\ O_2$) =	40 +	31 +	5 +	14

The serosity of Dr. Bostock (exuding from coagulated serum,) the muco-extractive matter of Dr. Marcet, and the *extrait de viande* of Berzelius consist chiefly of the tritoxide of protein of Mulder. Mulder some years since analysed false membranes, and gave the following as their composition; cellular tissue 1.4—Fibrine 28.6—Gelatine, and Extrait de viande, 70.0, in 100 parts. In his late Essay he remarks, that the fibrin of this analysis is composed chiefly of binoxide and the gelatine, and extraite de viande, of tritoxide of protein. The chief *Chemico-physiological inferences* from the proceding statements are: that the buffy coat is formed from the albumen of the blood, and that it consists of the two oxides of protein—that it is formed from the excess of these two oxides—that the two oxides of protein always exist in a certain proportion in the blood, being generated in the lungs during respiration. The protein thus becomes the carrier of oxygen to the tissues in the arterial blood, a function attributed by Liebig to the red globules. During fever and inflammation a large excess of oxy-protein is generated, in consequence of the increased rapidity of the circulation. Mulder attributes the metamorphosis and removal of effete tissue to the influence of oxygen, but not to the oxygen conveyed in the red particles, as supposed by Liebig. Mulder supposes that the oxy-protein reaches the capillaries, that the protein of the compound is deposited where new tissue is required, whilst the oxygen separated from it combines with the effete tissue, and so fits it for elimination.—From the *Medical Gazette*, Feb. 9, 1844.

EXAMINATION OF THE QUESTION—IS THE CHYLE INCIPIENT BLOOD? By JOHN ALDRIDGE, M. D. (Condensed from the Dublin Journal of Medical Science, March, 1844.)

The discoveries of modern organic chemistry have rendered it very probable that the essential constituents of the blood of animals, the albumen and fibrine, are taken into the stomach, ready formed, and that digestion consists merely in their solution; that, this process being effected, they are absorbed, at once constituting blood. Very powerful arguments have been advanced in support of this view by Liebig.

This new doctrine, however, of the blood being taken into the system ready formed, is opposed to all that we have been hitherto taught to believe concerning the matter; the doctrine almost universally held being that, after chymification, chylification, and lacteal absorption, the chyle has to undergo the process of assimilation; in a word, that chyle is blood in an incipient stage of its formation. The common theory regarding chyle is, that it is the nutritious part of the food, in a stage of assimilation. This theory is supported by the following facts; it is found in streaks through the ingesta within the intestines; the lacteals, after digestion, are found distended with it; diseases of the mesenteric glands are accompanied with marasmus; ligature of the thoracic duct is generally followed by death; the coagulability of chyle increases in its progress through the vessels; the chyle of the large lacteals contains more coagulable matter than the lymph of the lymphatics: the contents of the thoracic duct have sometimes a reddish tint, &c. Before considering the value of these facts in reference to the prevailing theory, he proposes to see what are the relations of the contents of the lacteals, lymphatics, and blood-vessels, when the intestines are empty, and when the liquid in the first class of these vessels is uninfluenced by the process of digestion.

The lymph appears, in all its properties, when drawn from any of the large lymphatics, to be identical with the liquor sanguinis—only it is more dilute—it contains globules smaller than blood-globules. The blood consists of liquor sanguinis with innumerable red globules in suspension. The lacteals, in the intervals of digestion, contain a fluid possessing all the ordinary properties of lymph. Tiedemann and Gmelin found the liquid of the thoracic duct in a fasting horse to contain somewhat more albumen than the lymph, and that it was of a reddish colour—redder even than after a meal; whence they inferred very rightly that this could not proceed from a process of assimilation; but from the presence of the colouring matter of the blood. They also found that the contents of the thoracic duct coagulated more firmly in fasting animals, and that the liquid contained in the large lacteals contains more fibrine, than the lymph of the large lymphatics of the pelvis. This they consider to be effected by the conglobate glands. The course of the lymph and chyle, compared with that of the blood, is very slow. Lymph and chyle are both alcaline—but less so than the blood. The lymph of the intestines, when it contains matter just absorbed from the digested food, is always more or less turbid. This is found to be occasioned by the chyle globules, which are nothing but fat derived from the food. This fat, when acted on by the bile, forms an emulsion, which gives the milky appearance to the chyle. The lacteal fluid is not invariably milky during digestion. After the use of butter the chyle is found charged with fat; whilst, after the use of starch, sugar has been found in chyle of a dog. The results deduced from all that has been stated by Dr. Aldridge are: *that, during digestion, some fat, or sugar, as the case may be, is added to the lymph contained in the lymphatics of the mesentery: neither fat nor sugar contain the elements out of which blood can be formed; and chyle cannot therefore be incipient blood.* To the many other reasons adduced by him for disbelieving that chyle is incipient blood, he adds the

great want of likelihood that a liquid so scanty in its quantity, and so slow in its motions as the chyle, should be the sole source from whence nutrition and secretion derive their supplies.

On Hermaphroditism. By Robert Knox, M.D. F.R.S.E. A Memoir read to the Royal Society of Edinburgh. (Condensed from the Medical Gazette, Nov. and Dec. 1843, and Jan. 1844.)

At the commencement of this Memoir, Dr. Knox tells us that, in 1821, during his sojourn in the French capital, his attention, whilst still a student, was first directed to the doctrines of the transcendental or philosophical anatomy, under the auspices of the elder Geoffroy, M. de Blainville, Baron Cuvier and Serres. About this time M. Geoffroy, though himself not an anatomist, irresistibly drew after him the best anatomists of Paris; his idealism in fact had taken possession of the minds of all the savans—he happened to be then engaged in explaining the development of the respiratory organs. The theories proposed by him on this subject appeared at the time unsatisfactory and even contradictory to Dr. Knox, who, on his return home, ventured to propose in his lectures on comparative anatomy (in 1825–6–7) the theory of "type," not as contradictory of that of unity of organization, but in opposition to that doctrine which maintained, that the respiratory organs are at *first* in the embryo not only of one kind, but even "neuter as regards function;" that a pulmonary apparatus might be, and was converted into a branchial set of organs; that organs might be converted into each other; that the hyoid bones were ribs, &c. To all these doctrines Dr. Knox objected, that there exist animals with both lungs and gills; that the trachea and bronchial tubes, if found at all in animals whose breathing was aquatic, could only exist in them in a rudimentary form, and could not be converted into other active organs of breathing; that the air-bladder in fishes was simply a rudimentary lung, and that the hyoid bones in man were merely rudimentary branchial arches—he finally proposed the theory that in the embryo of all the vertebrata the type of the respiratory organs was double—at once aerial and aquatic, pulmonary and branchial, there being no other theory which seemed explanatory of all the appearances. The objections made by Dr. Knox to the doctrine of the transmutation of organs into each other, were extended to the transcendental doctrines regarding the generative organs, as we shall presently see. He lays it down as an undoubted fact, that parts exist in animal bodies of all kinds with whose uses we are not acquainted. Organs which we know to be essential to the existence of one class of animals, exist in others, where evidently they cannot serve any useful purpose. In order to explain the presence of these organs, physiologists have devised certain principles; it has been said that these superfluous organs were placed there by Nature in order to preserve analogy in all her works. In the progress of time this doctrine of analogy was pushed still further, and it was laid down as a law, that the human fœtus, and indeed the fœtus of all the mammalia, is *forced* to pass, in its embryo and fœtal state, through various types of organization, proceeding as it were from below upwards, from the most simple to the most complex. If any of the mammalia happen to present at birth irregular structures, these are immediately traced to some regular structure in the lower divisions of the scale of being. Thus, if an animal high in the scale of being, and in which the sexes are naturally divided into two individuals, requiring both to constitute a species, should in some rare cases possess both kinds of organs, here the supporters of the "formations arretées" saw nothing extraordinary, as many of the lower classes are hermaphrodite. Now the doctrine of "formations arretées" is a good doctrine in itself, and by it may be solved many otherwise perplexing problems in physiology, and so also are the great

doctrines of unity of organization. Some malformations may be explained by this means; but there is no truth whatever that the human embryo is necessarily forced to pass through a series of metamorphoses whose outline embraces the vast range of living adult beings, prior to its assuming the human form. In order to account for the fact of the generative organs termed male and female being found to exist in the same individual, various theories have been devised. Some of these theories have imagined the fœtus to be at first of no sex—others have imagined it to possess the elements of both sexes, but by a strange inconsistency have imagined the organs convertible into each other. Before considering the merits of these opinions, Dr. Knox proceeds to determine the following points:—what are the essential female organs? what the male? and what the condition of the fœtus in its earliest stages? The organs essentially female are, 1st, the ovaries; 2d, the fallopian tubes; 3d, the uterus; 4th, the vagina. Of these organs we find no analogous structures, in form or function, in the male. All the rudiments of these organs, if they ever existed, have completely disappeared in the male; they occasionally, however, leave traces of their influence not to be mistaken. Dr. Knox here recounts the various erroneous opinions entertained by the ancients with respect to the structure and functions of several organs and parts found in the female, which we shall omit. He shows clearly that, in discussing the modern doctrines of hermaphroditism we shall not be considering novelties, but rather opinions coeval with the earliest period of philosophical anatomy. After showing that there may exist in females of any animal organs which in their character are essentially male, though they be not called on to perform any particular function, but are present simply by a law affecting the type of the generative organs, he now proceeds to consider the subject more in its details, by endeavouring to determine whether any organs, essentially female, exist in the male structure. In determining the organs essentially male, we may set down the testes in the first place, which have nothing strictly analogous to them in the female, though some will have it that the ovaries are their analogues, and go even farther, by saying that originally in the embryo there exists but one organ, and one tube leading from it, and these are convertible into either testis or ovary, according to the determination of the sex. The testis then and vasa deferentia, vesiculæ seminales and prostate gland, are to be considered as essentially male, and as having nothing at all analogous to them in the female; and therefore if all, or any part, be found to exist in her, it must be considered as the remains of the male structure, in no shape necessary for the performance of her functions. Again, the penis is essentially a male organ, though found in a rudimentary state in all women. To sum up then Dr. Knox's doctrine, the organs designated to be male, are essentially male organs, wherever found; they do not, when transferred to the other sex, take on the action of other organs, they perform no specific function there, nor are changed into any other structure; they are never found converted into other organs; the testes will never become ovaries, nor are the vasa deferentia convertible into Fallopian tubes. When male organs therefore, are found in females, they show an approach to hermaphrodism proportioned to the importance of the organ or organs transferred.

We now come to the cause of Hermaphroditism. We have already seen the manner in which the ancients account for hermaphroditism. Dr. Knox accounts for it thus: "The reason for all this (hermaphroditism) seems to depend on this great law in the construction of the genital organs: the embryo is at first hermaphrodital, both sets of organs are present: if the cause determinative of sex should act in an efficient manner, one set of organs nearly disappears, and the fœtus becomes male or female; but if not, Nature adheres to her original type, and both kinds of organs remain; the type of the generative organs, even in the highest orders of animals, is hermaphroditical." Before proceeding to the proofs of this assumption, he notices the opinions of some other physiologists. In one work on philosophical anatomy, the male and female organs are considered as

simple modifications of one type; the uterus represents the prostate and seminal vesicles by its position, form and functions; and yet, in direct opposition to this theory, the seminal vesicles and uterus have been found to co-exist in the same individual. Meckel supports the doctrine that all embryos are of the same sex at their origin, the analysis being—Testes=Ovaries—Fallopian tubes=Vasa deferentia, &c.

According to Blainville, the organs of generation are originally of the same nature in every degree of the organization—elsewhere this author says, that "animals are born neuter: that the ovary in the female is represented by the testis in the male." He compares the scrotum to the nymphæ, the Fallopian tube to the vas deferens. Such theories are at variance, according to Dr. Knox, with all well-observed facts; if both kinds of organs are found to co-exist in the same individual, they cannot be formed entirely out of the same materials. According to Dr. Knox, an original type seems to have been contemplated for each organ, or assemblage of organs; that type, in general, is extremely complex, and embraces within its range all possible structures; no particular animal has been selected as offering within its structure the types of all the organs, the economy of some low in the scale, being very complex as to certain organs, and *vice versâ*.

[Dr. Knox, in framing his hypothesis, that the type of the genital organs in man and the higher animals was originally in the embryo hermaphroditic, comprising elementary parts out of which both sets of sexual organs could be formed, appears to us to have proceeded in the same way in which all such physiological hypotheses are generally framed, namely, by drawing his premises from his conclusion, instead of his conclusions from his premises. Against this hypothesis, however, there exist many and strong objections. We shall mention one; it is evidently as incapable, as the old doctrine of sexual unity, of explaining all the cases of malformation by duplicity of the genital organs, as there are some well-authenticated instances of the existence of three or four testicles in the same man, or three or four ovaries in the same woman. In explaining such cases, Dr. Knox, even on his own doctrine, must admit the existence of malformation; and, if it be admitted in these instances, it is surely unnecessary to invent a special and gratuitous hypothesis in order to explain the analogous irregularities in Hermaphroditism. On this subject see an excellent article by Dr. Simpson in *Todd's Cyclopædia of Anatomy and Physiology*.—*Rev.*]

PATHOLOGY.

A SKETCH OF THE HUMORALISM OF THERAPEUTIC AND OTHER AGENTS, OR THEIR MODUS OPERANDI THROUGH THE BLOOD. By T. W. King. (Abridged.)

THE object which the author of this Essay seems to have in view is to connect reason and experience, physiology and pathology, in the ordinary practice of medicine and surgery. The humoralism of remedies is only a part of humoral physiology and humoral pathology. The first is designedly brought forward to assist in establishing the entire doctrine. The fundamental principle of medicine declares the truths or involves the facts—

1st. That health consists in a certain natural state, and moderated action of the several parts of the animal frame:

2d. That disease forms a perceptible departure from the healthful state; and

3d. That remedies have a power of modifying the disturbance or assisting the restoration.

Health consists in the balance of the functions—salutary oscillations and mutual compensations—periodic functions are essential supplementary acts. Disease is disturbed balance, in the form of local affections, or combined or general.

In physiology, pathology, and therapeutics, we have at least three different series of agencies—physical, humoral and nervous. A cut, a suppression of urine, and a fright, may severally represent these influences, and when we see a cut repaired by molecular deposits from the circulating fluid—a dysuria relieved by bleeding and mercurial purgatives, &c.—and the syncope of fear first induced by muscular relaxation, and then relieved by the horizontal position—we may perceive something of the intimate mingling of these three different kinds of influences. It is the humoral doctrine which we conceive to be most easily illustrated by therapeutic considerations, while it seems to extend and corroborate humoral principles in pathology generally. If this doctrine be made good with respect to remedies, it must of course stand good in physiology, &c.

The author conceives that the study of the humoral sets of remedies will serve to clear up the current notions of sympathy. Hunter's doctrine of sympathy he conceives entirely defective; in as much as excito-motory acts are not distinguished in it, humoral effects are not recognized, even simply nervous and physical results are set down in it as sympathies.

It is an elementary rule of therapeutics that matters, whether fluid or solid, nutrient, medicinal or poisonous, have various ways of gaining access to the circulating materials. They may be injected into the veins, received by the stomach, by the rectum and colon, by the natural and abraded surfaces, or by inhalation. The experiments of Dr. Blake (Edinburgh Med. and Surg. Journal, Oct. 1841) seem to justify the following *humoral* conclusions:—

1st. That a constant ratio exists between the time required for a poison to act, and the rapidity of the circulation.

2d. That the time required by a substance to permeate the capillaries may be considered as inappreciable.

3d. That in animals on which experiments have been made, a sufficient interval always elapses between the introduction of a poison into the vascular system, and the symptoms of its action, to allow of the blood, with which the poison has been mixed, reaching the capillaries of the tissue on which the poison exerts its deleterious effects.

4th. That the interval elapsing between the absorption of a substance by the capillaries and its general diffusion through the body may not exceed nine seconds.

That an interval always more than nine seconds elapses between the introduction of a poison into the capillaries or veins, and the appearance of its first effects.

With respect to poisons acting on the nervous system, the closer the part of the vascular circle at which a poison is introduced is to the nervous centres, the more rapid is its action. The same no doubt applies to any other organ as well as the brain.

From what is known of humoral principles, poisons only act when applied directly to the tissues they affect. The great rapidity with which poisons act, after they have reached the blood, may be accounted for by the very rapid circulation of animals under experiment.

The Author regards the blood as liable to contain agents which, 1st, excite—secretion; 2d, absorption; 3d, arrest secretion; 4th, excite nutrition. The mechanical and nervous effects of remedies he does not of course deny. *Excito-secretory agents* are sometimes applied directly, as in the case of snuff to the mucous membrane of the nose.

With respect to the action of purgatives, he observes that the peristaltic action of the bowels depends, first, on the presence of sufficiently massive contents,

and secondly on the due nutritive excitement of the muscular fibres. The action of the heart itself is regulated by distention and nutrition. We know nothing, he says, of purgatives which specifically increase the peristaltic action of the intestines. The common property of purgatives is that of exciting secretions, but this effect is not confined to the track of the bowels. The kidneys, skin, or bronchial membrane may share in it, or even be at times solely affected. When purgatives disturb the system, and excite other than bowel secretions, it cannot be in any other way than by absorption. Purging from cold, ischuria, or inunction, seems also of humoral origin. There is no case in which solution, and transudation, and a free circulation of the purgative, may not take place. The more certain catharsis of larger doses—as of turpentine, antimony, &c.—may be referable to directly excited secretion.

The modus operandi of expectorants, that is, medicines which relieve bronchial obstruction, is, he says, simple enough. Inflammatory injection of the bronchi is relieved by all the means of depletion, of which the exciting of general or remote secretions (as expectorants do) forms a part. Abstinence and diluents may both act as expectorants.

The quantity of the blood, its constitution, the activity of excretory organs, the freedom of the heart and lungs, the ready control of these organs by the brain, the external temperature, are so many decided modifying regulators of absorption. We know little of medicines *which specifically promote absorptions*, and atrophy of new or original growths. The result seems to depend specifically on the state of the general system. Pressure is a direct means of exciting absorption; abstinence and depletion indirect means; exercise, as it wastes the mass, acts in the same way. A combination of these resources is most powerful. On the other hand, the same agents, carefully regulated, with a view to restore the balance of health when it has been seriously disturbed, possess a tonic and even a nutritive tendency. With plenty of good blood, frictions and ease induce hypertrophy of parts. It does not yet appear that mercury, iodine, purgatives, or venæsections, have any but one mode of inducing absorption. The effect of either of these may be very various in different cases, whether we regard the blood, individual secretions, or particular disorders of the body. To diminish the former, remove its fluids, and alter its contituents, may be only distinct depletory acts. Declining nutrition differs from absorption only in degree. *Remedies which diminish secretion*, when they are needed and prove effectual, are called tonics, but as they are not specific local agents, they are liable to prove quite the reverse of tonic; fever, increased discharges, and debility may result from their use. If they arrest several secretions, we should expect that the result may be the aggravation of one already too active—an inflammatory diarrhœa. The mode in which mercury arrests a diarrhœa seems to be by exciting other secretions: when, balance being restored, all subsides together; and new nutrition re-establishes health. By exciting various excretory organs we may establish a balance of action which subsequently may maintain itself; so ipecacuan acts.

Free diaphoresis or a hard ride shall even absorb the liquids of the rectum. Much in this case depends on the actual condition of the frame.

The first effect of alcohol on the capillaries in which it circulates may be of an astringent or tonic kind, to which succeed arterial delay and increased cardiac impulse. A strong and at the same time equable, distribution of blood with but tardy diminution by excretion or nutrient deposit, is for a time quite consistent with a sense of vigor, and this depends more on the state of the whole than on that of a part of the brain. As the venous blood gets diluted or depurated by secretion (or both), capillary relaxation should succeed, with as much nutrient deposit as the blood can spare, and as much of different secretions as there are specific matters in the blood to determine. Lastly, comes the hungry need of renewed stimulus. Pallor and tremor are not merely nervous. Every fibre and tube is wrong for lack of due nutrition and support. The effects of opium

resemble the above; they are by no means confined to the brain. The more these agents act universally, the less danger is there from the oppression of any one organ. A large juicy frame, a copious digestion, abundant activity, may save the liver or the kidney from being especially acted on and overwhelmed. With alcohol and much clothing a coachman may protect his kidneys from being overtaxed by cold; but when excessive and deteriorated renal function has commenced, what clothing will prevent alcohol from aggravating the evil? Still we dare not disregard the wants of all the organs which long habit may have rendered it imperative to allay. In delirium tremens it might seem that the abrupt diminution of habitual stimulus leaves the circulation and excretory acts devoid of indispensable support. Depurations fail, and digestion also, and the body is more affected by cold and the like.

Nutrients are direct or indirect. The direct consist in good food, to which are essential natural digestion, circulation, and excretory depurations. The indirect are those which restore health either by retarding undue secretions or by stimulating tardy emunctories. Moderate degrees of pressure, friction, &c. lead to increased capillary supply of parts; and if the blood abound in the specific nutritive matter required by bone or gland, increased development results, or atrophy, or worse, may be the consequence of humoral deficiencies. Bodily exercise induces a universal call for nutrient and secretory changes, and this is a powerful means of affecting the constitution of the blood. In moderation it invigorates, in excess it exhausts. With depletion or debility it aggravates the evil. To conclude, the judicious use of humoral agents must form a great part of the resources of the physician.—*Provincial Medical Journal*, Dec. 23d.

NOTES ON URINARY DISEASES. By JOHN ALDRIDGE, M.D. Second Series. (Continued from No. LXVII. of the Dublin Medical Journal, Vol. 33, page 83.)

Liebig's Theory of the Urinary Secretion.

In presenting an analysis of these Notes of Dr. Aldridge, we presume our readers to be acquainted with the leading theories of Professor Liebig, as contained in his celebrated work on Animal Chemistry. In a former number of the Dublin Journal, Dr. Aldridge published a Series of Notes on Urinary Diseases. On perusing Liebig's work, he found that some of the views contained therein seemed to militate against the conclusions to which his (Dr. Aldridge's) experience had led him—he therefore determined to submit the matter to further examination. Among the propositions contained in these Notes, Dr. A. considers the following as one of the most important:—"That a deposition of lithates in the urine corresponds with an increased quantity of urea and lactic acid; that the amount of these essential constituents of the secretion can be measured by the specific gravity, provided no unaccustomed substance, such as sugar or albumen, be present; that the relatively increased quantity of lithic acid, urea, and lactic acid, in these cases, does not depend on a greater amount of these substances being secreted by the kidneys, but on a deficiency of water, which renders the liquid more concentrated; and that this deficiency of water proceeds from either of two causes; namely, a derivation to some other organ by flux or dropsy, or by a sympathetic irritation of the kidneys themselves."

Only one of the two causes here alluded to by Dr. Aldridge is assigned by that gentleman, namely, the derivation, &c.; what the other cause is, he has not told us. Dr. Aldridge now attempts to show that, as far as regards the modifications of urine in disease, Professor Liebig has fallen into many and serious errors. M. Liebig thinks that alterations from the normal condition of the urine are produced either by excessive or deficient oxydation. According to

him, the solid constituents of the urine are products of the transformation of the tissues; and the quantity excreted, therefore, forms a direct measure of the rapidity of this change. On the contrary, the presence of non-nitrogenized and more combustible substances either diminishes the amount of decomposition, which the tissues undergo, or renders imperfect the process of oxydation. Want of exercise, by diminishing respiration, produces the same effects. In support of these views, Liebig makes the following statements:—

"From the first moment that the functions of the lungs or of the skin are interrupted or disturbed, compounds rich in carbon appear in the urine, which acquires a brown colour." Again, after showing that by addition of oxygen, uric acid becomes converted into urea and carbonic acid, he states that the mulberry and urate of ammonia calculi occur always in sedentary persons from want of oxygen; that these calculi never are found in phthisical patients; and that persons having uric acid calculi in town, get oxalic acid calculi when they go to the country, and take more exercise. He quotes from Dr. Prout, that, "in fevers and during rapid emaciation, the urine contains more urea than in the state of health." He asserts that the use of wine and fat promote the formation of uric acid; and he again quotes from Dr. Prout, that "the urine after fat food has been taken is turbid, and deposits minute crystals of uric acid." Again he says, that "in animals which drink much water, by means of which the sparingly soluble uric acid is kept dissolved, so that the inspired oxygen can act upon it, no uric acid is found in the urine, but only urea. In birds, which seldom drink, uric acid predominates. Again Liebig says, concretions of uric acid have never yet been observed in carnivorous mammalia, living in the wild state." Believing that the bile in herbivorous mammalia and man is partly formed from non-nitrogenized food, carried directly by the vena portæ to the liver, and partly from nitrogenized products of transformation; M. Liebig makes the following reflections on the effect of animal food in altering the secretions: "The appearance of uric acid in the urine, the deposition of uric acid in the joints and bladder, as well as the influence which an excess of animal food (equivalent to a deficiency of starch, &c.) exercises on the separation of uric acid in certain individuals, may be explained on this principle. If starch, sugar, &c., be deficient, then a part of the azotized compounds formed during the change of matter, will either remain in the situation where they have been formed, in which case they will not be sent from the liver into the circulation, and therefore will not undergo the final changes dependent on the action of oxygen, or they will be separated by the kidneys in some form different from the normal one." Such are the data offered by Liebig to test the truth of his theory—that the modifications of the urine are produced by variations in oxydation of the waste of tissues. Dr. Aldridge now proceeds to their examination. He first sets about disproving Liebig's assertion, that "from the first moment the functions of the lungs or of the skin are interrupted or disturbed, compounds rich in carbon appear in the urine, which acquire a brown colour." He shows that profuse sweating will produce concentrated urine, whilst suppression of the perspiration by external cold will cause the urine to become pale and watery. The use of the bath, which impedes oxydation by the skin, renders the urine pale and increases its quantity. We are inclined to question the correctness of Dr. Aldridge's assertion, that the use of the bath interrupts the functions of the skin—the bath is often employed to promote the cutaneous functions—so that goes for nothing. In profuse sweating, again, the normal functions of the skin, a very important one of which is the inhalation of oxygen, are very seriously interrupted—so that makes for M. Liebig. With respect to the influence of interrupted function of the lung on the state of the urine, Dr. Aldridge admits that "compounds, rich in carbon, are relatively abundant in pneumonias, acute catarrhs, and pleurisies," and such a result coincides with Liebig's theory; nor is that theory upset by the fact, that compounds, rich in carbon, are also found in other inflammatory dis-

eases—that would be strange logic indeed. We shall probably resume our notice of Dr. Aldridge's ingenious strictures on some future occasion.

CASE OF TUBERCULAR ELEPHANTIASIS IN A MAN OF ENGLISH PARENTAGE, BORN IN INDIA. By J. KINNIS, M.D., Surgeon to the Forces.

We have here a case, minutely detailed, of tubercular elephantiasis occurring in a man of English parentage, the only one ever witnessed by the medical gentleman who reports it; in which both the parents were Europeans. The individual in whom it occurred was Sergeant William Bibby, born in Bangalore of English parents in 1808. At the age of 17 he enlisted in H. M. 38th Regiment, in which corps his father was a sergeant. In 1828 he was promoted to the rank of sergeant. Dec. 1835, he embarked for England, being then 27 years of age, up to which period he had enjoyed uninterrupted good health. After some time he left England, and proceeded to Ireland in July 1837. In 1838 he got a severe wetting in marching from Dublin to Enniskillen, got a severe cold in his head, for which he staid in hospital about one fortnight. In 1839, the same thing happened him. In Sept. 1840 he left for Zante. The first eleven nights after his arrival there, he had to sleep in the open air, and during his stay in Zante he was very uncomfortably lodged, exposed to wind and rain. In Nov. 1840 the right side of his face became red, swollen, and painful; the size of the swelling changed with the changes of the weather, but never entirely subsided; it eventually assumed an uneven and knotty form, and also attacked the left cheek. From its first appearance in November, he was rarely free from cold and stuffing in the head, hoarseness, chilliness, and rheumatic pains. For the first time, in April of 1842, he observed discoloured swellings on his arms and thighs; in the August of this year he was obliged to go into hospital, where he remained till his regiment embarked for Gibraltar in March 1843. Here he continued in hospital until his regiment left for Fort Pitt, where the regiment arrived in July; here he underwent mere palliative treatment until September, when he was discharged as an out-pensioner of Chelsea Hospital. His complexion is not darker than that of Englishmen in general who have resided in the Tropics: his hair blackish-brown, abundant on the head—a few, distant, silky hairs are the only representatives of his beard. Whiskers moderately luxuriant, over about one-half the surface they ought to cover, the other half being studded by bare, tubercular elevations. Parts of the body chiefly affected with tubercles are the face, upper limbs, hips and thighs. The skin covering the cheek-bones and bridge of the nose is red, glossy, thickened, smooth, uneven or undulated. The lower parts of the face are occupied by two large imbedded clusters and several distinct tubercles, rising a little above and corresponding nearly in colour with the natural skin; at each angle of the mouth there are two. The appearance of the nose considerably modified—to the left there is a deep groove with a small tubercle at its summit, and on the right is another groove surrounding the right wing—shrunk to half its natural size, and closing the corresponding nostril like a valve. No tubercles within the mouth, nor on the ears. Beneath the chin, on the mesial plane, is a cluster of imbedded tubercles. On the middle half of the back and outside of both arms the skin is irregularly thickened, hardened, dry, dark, and glistening; between the condyles are smaller similar patches, and over the deltoid and biceps muscles, the back and outside of the forearm, right wrist and metacarpus are clusters and chains of bluish-red slightly raised, oblong tubercles. The backs of the hands, wrists, and fingers, are dry, glossy, wrinkled. The cuticle of the palms is thick, rough, dry, and separating in opaque white scales. In 1841 the point of the right fore-finger became inflamed, and, after being poulticed, discharged first matter, then several pieces of bone,

and healed in due time. Nearly the whole of the distal phalanx of this finger is now wanting; though the nail remains, shortened, divided by ridges, and drawn over the end of the stump. This finger has completely lost all sensibility. The skin of the right hand is much benumbed and its muscular power much impaired.

In both these respects the left hand is in its natural state. Trunk much emaciated. Great numbers of tubercles on both hips and on the back, front, and inside of the thighs—one or two on the right knee. The skin on the back of the legs and on the ancles and feet, thickened, indurated and benumbed: cellular membrane œdematous; cuticle dry, rough, thickened, cracked and peeling off in shreds, or discharging a serous fluid from the true skin. Toes smooth, swollen, shining. Two enlarged glands under the right groin, and a third lower down. Some time before the August of 1842, he had lost all sexual desire; testicles small, though not much wasted; general health and strength greatly reduced. Walks about by the aid of a staff; with pain, difficulty and dyspnœa. Height 5 feet 9½ inches. In his clothes he weighed

	Stones.	lb.
Before leaving India..	10	0
In Ireland, 1838	9	10
At Fort Pitt, 22d. Sept. 1843	8	2¼

Deducting his hospital dress (= 6lbs.) his present weight is 7 stones 10¼ lbs. In recumbent posture, pulse from 95 to 100, and respiration 21 per minute. In sitting posture, former is 120 and latter 31. Tongue clean, appetite capricious; thirst constant—constipation habitual. Very sensible to exposure of cold air. Constant pain in feet and ancles—rarely sleeps more than four hours even with anodynes—perspires profusely at night—the tubercles increase in redness and size, and become the seat of "burning pain." Voice hoarse and nasal—about once a fortnight has a febrile paroxysm, which terminates the same day in perspiration. Is married and has had four children—one died of cholera, two of hydrocephalus (when very young,) and one, a fine healthy girl, still survives. His wife and this child are now with him.—(From the Edinb. Med. and Surg. Journal, Jan. 1844.)

On the Statistics of Fever in St. Thomas's Hospital, with reference to Treatment. By H. Burton, M.D. (From the Med. Gazette, Nov. 7, 1843, Jan. 19, and Feb. 9, 1844.)

Dr. Burton tells us, that the contradictory precepts relating to the treatment of fever, and what appeared to him the unwarrantable preference for particular therapeutic methods, induced him to undertake the task of collating the results of six years' experience of the fever which usually prevails in London.

The fever to which his remarks apply was, in the years 1837 and 1838, epidemic in several districts of London, and between the Spring of the former year and Midsummer 1843, 354 patients were placed with this disease under his care at different intermediate periods. Among these 354 fever patients, no cases of the exanthematous fevers are at all included; all the cases were conceived to be analogous to the continued fevers described by Huxham, as putrid, petechial, and slow nervous fever; as synochus, contagious and malignant, by Dr. Willan and others. The patients were, for the most part, servants, workmen exposed to the ordinary hardships of their respective occupations, and others in a state of comparative destitution, among whom neglect of cleanliness, want and poverty, tended to engender and diffuse fever of an adynamic character. In no case was there any sudden crisis observed—the subsidence of the disease was gradual, and

marked in particular by an improving appetite, cleaning of the tongue, and retardation of the pulse. In almost all the severe cases the brain, heart and lungs seemed to be, during life, the principal organs affected by the typhoid poison. In the post-mortem examinations, heart was generally found flabby, lungs and brain congested, and sometimes the seat of organic lesions; spleen gorged with blood, intestines sometimes ulcerated. The variations observed in the rates of mortality, observed in fevers occurring in different periods, depend probably on many causes, some internal, others external to the body, in conjunction with the febrile virus; such as organic disease existing previous to the fever; age, sex, day of fever on which treatment was commenced, and the season of the year. Dr. Burton now inquires into the influence of these various causes over the results of his practice.

Seasons.—The disparity between the rates of mortality at different seasons is very remarkable, and the results observed show that a larger proportion of patients died from fever during the coldest seasons than during the hottest of the last six years. The mean average mortality among 8800 patients in St. Thomas's Hospital for the last six years, was 1 in 7¾; in 1819, among 1008 patients in the same hospital, it was 1 in 7¾; and in 1820, among 1121, it was 1 in 9½, precisely the same rate as in 1842—hence there is good reason to believe that no material or constant difference in the rates of mortality has occurred in this hospital for the last 23 years among the physicians' patients. Dr. Burton found, with respect to *sex*, that the rate of mortality during corresponding periods was much greater among the male than the female patients. This influence of sex, however, is not invariably the same. With respect to the influence of *age*, there is reason to believe that the youngest have the best chance of surviving; and persons under 30 are more susceptible of fever than those above that age; but that the proportional mortality among them is less than among those who have attained a more advanced age. With respect to the day of commencing treatment there is little doubt that its influence ranks high among the various causes which modify mortality, and that, as far as regards prognosis and therapeutics, it merits an attentive consideration. The inquiry with respect to this, Dr. Burton divides into three parts: 1st, he inquires into the influence of the day of commencing treatment on the rates of mortality; 2d, its influence on the duration of fatal cases; 3d, its influence on the duration of cases which terminated in recovery. The influence of the day of commencing treatment must be obvious, when we consider the causes which modify the rates of mortality in fever; viz. the combined agency of organic disease, and of the febrile poison; this organic disease either existing before the accession of fever, or caused during its progress—the neglect of prophylactic measures must of course augment the virulent powers of the febrile poison. The co-existence of organic disease and recent congestion has been frequently noticed in the bodies of those who died of fever. With respect to the influence of the day of fever on its duration in fatal cases, from a variety of considerations, Dr. Burton is induced to come to the conclusion that the variable duration of fatal fevers should be ascribed to the vital importance of the organ implicated, rather than to the influence of the day on which the treatment was commenced. With respect to the influence of the day of fever on its duration in recoveries, his conclusion is, that the mortality from fever as well as its duration in recoveries, might be lessened by the timely application of therapeutic measures. Sex appears, according to Dr. Burton, to exert but a very slight influence over the duration of fevers, after admission in recoveries.

Age on the duration of fever.—1st in recoveries. Dr. Burton's experience leads him to the conclusion that though the period of convalescence in fever, generally speaking, is protracted by age, yet the influence of age on its duration, in cases of recoveries is limited, and subordinate to that of the day of admission among

patients under 45 years of age; but after 45 and under 64 years, age appears to assume a preponderating influence over the day of fever. Hence will appear the necessity, in statistical records relative to the duration of fever and the age of the patient, of noting down, at what period of the fever the patient was admitted. 2d. *Age on the duration of fever in fatal cases.* Limited as this influence is in cases of recovery, it is found, according to Dr. Burton, to be still more so in cases of death. This conclusion he found to be confirmed by the results of 198 fatal cases treated in St. Thomas's Hospital, London Fever Hospital, the Royal Infirmary of Edinburgh, and the Hôpital de la Charité, Paris. He next considers the duration in reference to the epidemic prevalence of fever. On the decline of the epidemic in the first part of 1838, and on its supposed cessation after June, 1838, the fevers assumed a milder character, as appears from the fact, that of 144 cases which occurred in the periods just mentioned, 29 became convalescent during the first week after admission into Hospital; whereas, whilst the epidemic lasted, none became convalescent during the first week, and only 34 during the second week. But though the average duration of the epidemic (in 1837) was more protracted than after June, 1838, still the annual average of mortality was less. So that the duration of the fevers terminating in recovery, and the mortality seemed in a manner to reciprocate. Hence will appear the necessity of taking the epidemic constitution of the atmosphere into the account, when estimating the effects of treatment in recoveries as well as in fatal cases. Dr. Burton suggests it as probable that the epidemic constitution of the air determines not only the virulence with which the febrile poison acts on the blood, but also the particular organic lesions which occur. Now these variable lesions which occur in various epidemics, and which are known to modify the duration of fevers, not being sufficiently characterized by symptoms during life, it is impossible to speak with any degree of confidence as to the precise organic lesion in them; so that no numerical calculation will afford much aid to the practical physician in single cases.

The influence of the four quarterly seasons did not appear to be very striking on the duration of the fevers which recovered, irrespective of the epidemic constitution of the atmosphere. Dr. Burton remarks that the influence of sex for corresponding periods over the duration of the fever from the commencement appears to have been controlled by a more powerful agency; for though in some instances the females recovered a few days earlier, yet in others their recovery was more protracted than that of the males.

The fevers admitted in the first weeks of their course, and which terminated during the first weeks after admission, were very few and mild; while those admitted in the second week, and which terminated in the first week after admission were, for the most part, nearly convalescent, and not seriously complicated; whereas those protracted over the fourth week from their commencement were severe and complicated with thoracic or abdominal lesions.—*Medical Gazette*, Feb. 9, 1844.

On impending Dissolution and Nervous Affections in Young Infants. By Dr. Doherty.

The three modes of sudden death, as laid down by Dr. Alison, scil. death commencing at the brain, death commencing at the lungs, and death commencing at the heart, are frequently well exemplified in the risks to which children are exposed at birth. Death, commencing at the brain, may be induced in two ways; firstly, as in compression, when the respiratory function is the first to suffer; and secondly, as in concussion, when the heart's action is directly arrested. The first mode, or that by coma, is frequently a cause of children's being still-born—the peculiarities attending this state are—venous turgescence, bloated counte-

nance, slow and impeded respiration. This state is occasioned by the head being subjected to long-continued pressure in any way. This congestion, if not removed, is liable to be attended with convulsions, or paralysis in various degrees. When, again, the brain suffers concussion after the fœtus has been exposed to strong uterine action, or having its head driven with shocks against resisting points, then the child, when expelled, is of a pallid hue, with relaxed limbs, cord pulseless, or beating feebly, the temperature of the body being very low; this is still more marked, if the spinal cord be severely injured below the neck; in such cases the circulation in the capillaries appears for some time even more affected than the heart's action, although it is by the gradual failure of the circulation that such cases prove ultimately fatal—these cases serve to illustrate the injury by concussion to the nervous centres; and, if the proper means be not adopted, they quickly prove fatal from exhaustion, or soon become the subjects of spasmodic action.

In the two species of danger now under consideration, the treatment required will obviously be in some degree different. In the former or apoplectic form, blood should be abstracted, with the warm bath and friction—cold to the head. If, after this, appearances of congestion remain, or the respiration be feeble, apply one or two leeches to the fontanelle—employ purgatives, to be alternated, if necessary, with stimulants, until the balance of the circulation is established. If convulsions set in, the same remedies are to be pushed still further, aided by calomel, counter-irritation to the neck, and cataplasms to the feet. In this form Dr. Doherty considers that injections with turpentine, so commonly resorted to, are by no means judicious, since they seem to re-act injuriously on the head. In these cases there is often a congested state of the intestinal mucous membrane; for the removal of this a leech should be applied to the epigastrium, or anus, and other methods should be employed, peculiarly suited to this complication. When, on the other hand, the child comes into the world pale and feeble, with symptoms resembling those arising from concussion, we must not resort to blood-letting in the first instance. The warm bath, frictions to the surface, ammonia to the nostrils, mustard to the feet, and the injection into the stomach of a little wine whey to which a few drops of æther have been added, are the means to be employed. With respect to the best mode of employing cold water for the resuscitation of still-born children, Dr. Doherty coincides with Dr. M. Hall in considering that the sudden and forcible impression of cold water on the face and general surface is one of the most important remedies in congenital asphyxia. To prevent a lowering of the temperature, the dashing of the cold water should be alternated with a warm bath succeeded by warm flannels, which are to be applied briskly and suddenly.

Dr. Doherty notices the abuse of the term asphyxia as applied to impending death in new-born infants. Correctly speaking, it implies a condition, which is a consequence of a cause that arrests directly the supply of pure air which should enter the chest. In the fœtus at birth no such cause exists under ordinary circumstances. In the case of the infant the ingress of air is not prevented by a mechanical impediment; the breathing, if unaccomplished, is so, not from any fault in the lungs, but from a defect in the stimulus of nervous influence; for which reason we should have recourse to other measures rather than artificial inflation in the first instance. There is another difference also between a child still-born, and an adult in a state of asphyxia, namely, that the latter has been accustomed to the circulation of arterialized blood, and the former not. In an adult, when death commences at the lungs, the chain of events inducing it may be thus:—1st, suspension of the respiratory function, the heart's action continuing; 2d, the contact of venous blood with the nervous centres, by the deleterious qualities of which their sensibility is depressed, and 3d, a stagnation of blood in the lungs. Under such circumstances, life may often be preserved by reversing these conditions and substituting for natural inspiration an artificial

current of air. But in the child which has never breathed, the nervous apparatus has not yet been supplied with aërated blood; hence our efforts for restoration are not to commence at the lungs, but should be devoted rather to the brain and its peripheral extremities. Then, indeed, it may be useful, if breathing be delayed to blow into the lungs, since expansion and contraction of the chest, and the vital actions consequent thereon directly aid in the circulation of the blood. One of the chief defects of artificial breathing is, that in it the chest is expanded by the pressure of the injected air, whereas, in natural breathing, the air enters in consequence of its spontaneous enlargement. The operation of inflating the lungs requires considerable skill. There is yet another mode in which death commencing in the respiratory organs may be produced in the infant. Joerg of Leipzig was the first who pointed out the injurious consequences to the child of too speedy a delivery. In such cases, in consequence of the inferior degree of compression to which the placenta is subjected, a sufficient tendency is not given to the foramen ovale to close, nor is a necessity for respiration felt by the system. After birth, then, a portion of the lungs alone becomes filled with air, while the remainder continues in a fœtal state, which, among other bad consequences, may give rise to fatal apoplexy, depending on the want of duly oxygenated blood. We sometimes see instances in which, after birth, the heart of the child is laboured and tumultuous in its action, and apparently oppressed by the blood that flows upon it; in such cases congestion of the surface, convulsions, and even death may ensue. The same symptoms are often induced by tying the cord too soon, before the respiratory function has come sufficiently into action to open a new course for the circulation. They require leeching over the cardiac region, &c. for their removal. Hæmorrhagic discharges from the uterus during gestation or labour, may be a cause of death and premature expulsion to the fœtus, or of deficient vitality in the infant, even if it go to the full time, not by a direct detraction from its system, but owing to a deprivation of that peculiar influence exercised by the placenta on the fluids carried to it by the umbilical arteries. To syncope may be assigned the imminent danger which threatens the fœtus when it presents by the feet, the cord being, under such circumstances, very liable to such compression, as will instantly put an end to the transmission of blood through it. The consequence of sudden annihilation of the funic circulation must be that the supply of blood to the left side of the heart is at once cut off. There seem to be two modes whereby compression of the naval-string may prove detrimental to the fœtus; first, resulting from a total obliteration of its vessels, an almost instantaneous suspension of life, beginning at the heart; and, secondly, a comatose condition, slower in its approach, having its seat in the brain. Death, having its commencement at the heart—as indicated by paleness and collapse of the countenance, cold extremities, pulse becoming gradually imperceptible, whilst respiration continues to the last, is still more plainly exemplified by cases wherein, from inattention, bleeding from the cord occurs, or when the same accident attends ulceration at the umbilicus, after the naval-string has dropped. The treatment in such cases is: observance of the horizontal position, application of heat, stimulants, &c. Injury inflicted on the spinal cord during delivery may extinguish life by directly arresting the heart's action—this arises from the respiratory muscles becoming paralysed. Cases of this kind, from the violent spasms which attend them, often resemble trismus nascentium, the chief difference being that they present a moveable condition of the jaw, and a power of deglutition in the intervals between the fits. Spinal congestion is characterized by convulsions of the limbs, and sometimes of the face, and more particularly by tetanic spasms, assuming generally the form of opisthotonos. The same remedies are required for its removal, as in congestion within the head, scil. local abstraction of blood, counter-irritation, calomel, &c.—(*Condensed from the Dublin Journal*, March, 1844.)

REMARKS ON A PECULIAR FORM OF PARALYSIS. By W. P. BUEL, M.D.

The form of paralysis here alluded to, affects the nerves and muscles of the fore-arm, the hand, the thumb, and the fingers; producing loss of muscular power, and loss of sensation, partial or complete, from the bend of the elbow to the tips of the fingers; when the arm is extended and pronated the hand drops: hence, the affection has been called the "drop-hand." The power of grasping between the thumb and fingers, as also that of closing the fingers upon the palm, is either partially or entirely lost. Sensation, which is somewhat diminished at the upper part of the fore-arm, becomes still more diminished as we go downwards to the fingers, where it is often entirely destroyed.

According to Dr. Buel, the cause of the affection appears to be one and the same, viz.: the long-continued pressure of the weight of the body upon the nerves of the fore-arm in sleep. The persons thus affected will say they went to bed at night as well as usual; and on awaking they found the fore-arm and hand numb and powerless. The paralysis, in this case, was the result of the long-continued pressure upon the nerves of the fore-arm, they having gone to sleep with the fore-arm under the body, in which position they remained for several hours. The mode of treatment found most successful in these cases consisted in the application of from two to three moxas up and down the palmar surface of the fore-arm; by these means the cure is, in general, completed in from three to four weeks. The form of moxa employed was that of bits of gum camphor. The distinguishing characteristics between this form of paralysis and that occasioned by the introduction of lead into the system, are the following: 1st. There had been no exposure to lead in any form. 2d. The affection was unaccompanied by constipation of the bowels, which, in paralysis occasioned by lead, is a marked and prominent symptom. 3d. In paralysis occasioned by lead, the attack is gradual, but in these cases it was sudden. 4th. In the form of paralysis here alluded to, the successful remedies were of a decidedly local nature, which would be totally ineffectual, if produced by a cause operating on the entire system.—*New-York Journal of Medicine*, Jan. 1844.

COMPLICATED MENSTRUATION. By W. DETMOLD, M.D.

Miss R. of dark hair and complexion, had always enjoyed good health and was apparently of a robust constitution. At the age of 14, her menses first appeared, without any disturbance in her general health; and after that, she menstruated regularly for about a year. During one of her menstrual periods she happened to have a bilious attack, with a severe sore throat. For this, leeches were applied, and she was bled from the arm. Her menstruation stopped during the night succeeding the venesection, and the following morning she had lost the use of her left leg, which became very painful, and began to swell from the hips down to the toes. Simultaneously with the swelling of the leg, *the whole surface of the body became covered with black hair*, so that the arms, legs, and chest of the young lady, looked more like those of a hairy man of forty, while the upper lip and cheeks were covered with a delicate dark down.

About three months after this, Dr, Detmold saw her for the first time. He observed that the hair showed more on the sound leg than on the other—her entire body was now become much emaciated, and her countenance bore an expression of great suffering. The skin of the affected leg was in the highest degree of tension from the enormous swelling. She suffered intense pain from the slightest attempt to move the limb. She had two large ulcers from decubitus

on the sacrum—pulse now about 108. Her appetite improved, and, altogether, the disease seemed to have passed its acmé; she began gradually to improve, the swelling of the leg diminished slowly, and, about four months and a-half from the commencement of her illness, she moved about on crutches. The hair on her limbs and body gradually disappeared, and about six months from the commencement the menses re-appeared. She is now a fine hearty-looking young woman, and has the full use of her limbs. Among the various remedies applied, the application of ice to the swollen limb seemed to be the most beneficial.—*New-York Journal of Medicine*, July, 1843.

Curious, if correct.—*Eds.*

THE SOUNDS OF AUSCULTATION AS DISTINCT AS THE BELL OF ST. PAUL'S.

Our readers will do us the justice to admit that we have been consistent friends of Auscultation. We were among the very first, in England, to point out the value of the "*inutile lignum*," and came in for our share of ridicule on the occasion. But we own that we are left in the lurch by our successors. Having had some little experience of auscultation, flattering ourselves that we have practised it with decent success, we feel that we must give way to younger, more ardent, and more lucky proselytes. For, alas, we have seen mistakes committed by auscultators, and have had our share of them, and grieved we are to say, that we have not always found it easy to avoid them. The disturbing circumstances are many, the auscultic sounds not always clear, and the "observatio difficilis" as present here as in other parts of medicine.

Such is the sad but true confession of those who have practised rather largely, and not altogether in a corner Pleased then we are, to learn that others do not meet with difficulties, are not conscious of mistakes, but find the unvarying tenor of their way one constant triumph of diagnosis. The late Dr. Hope announced that, in fifteen minutes, he could teach any pupil to distinguish the sounds that characterise the different diseases of the heart—a task that Laennec abandoned as impracticable. Yet so it was, that, in the latter part of his useful and honourable life, we met Dr. Hope himself in more than one case, where his own diagnosis was erroneous.

And now Dr. Bennett comes forward to tell us gratifying news. In his hands the stethoscope leads to no errors, solves all doubts, and leaves nothing dubious behind it. "Every sound," so he writes in the Lancet, of the 25th of November, "every sound yielded by auscultation, is to a well-organised and well-trained ear, as distinct, although not as loud as the stroke of St. Paul's bell."

That the sound is not so loud as that of the *great* bell of St. Paul's, no candid man can deny, indeed it is probable that, such an idea being never entertained, the information is not altogether new. But, to our ears, we must own that the sound is not even so *distinct* as Paul's bell. Whether the fault be in our organization, or our training, we know not—but the "soft impeachment" we do know. Dr. Bennett, in a later number of the Lancet, reduces his proposition a little, and contents himself with affirming that every sound "that is worth one straw of confidence" is as clear as the toll of our cathedral. We hope it is so, but we have not found it so, and we cannot but be pleased that it has been so with Dr. Bennett. Auscultation, in his hands, has attained a degree of perfection accorded to no other department of diagnosis.

ANEURISM OF THE UMBILICAL CORD.

Mr. M'Dougall relates this fact in the Lancet. He delivered Mrs. D. of a dead child. It was a breech presentation. On the funis was a tumour, the size of a hen's egg, about two inches from its placental extremity. Dividing its coats, which were only the coverings of the cord, layers of fibrine appeared, and in the centre a coagulum of blood. Water injected into the vein, issued from a transverse fissure in it about the centre of the tumour, which was thus a genuine false aneurism. The preparation of the cord is in the Exeter Dispensary. The fœtus had attained only about seven months' development, although the woman stated that "she was over her time."—*Lancet*, Feb. 10, 1844.

OBJECTIONS TO THE VEGETABLE ORIGIN OF PORRIGO DECALVANS.

Mr. Horne writes a letter in the Lancet, containing what appears to us very unanswerable objections to some observations of M. Gruby, quoted in our last number, purporting to prove the vegetable origin of Porrigo Decalvans. Mr. Horne remarks:—

"The first objection I have to make is, that instead of the bald surface being covered with dry scales, or a white brawn-like powder, as M. Gruby supposes, this condition never exists in the disease under consideration, the external appearances of porrigo decalvans presenting a bald, smooth, and remarkably shining indentated surface.

"If the disease produces no powdery secretion, we have none to examine; therefore I pass to the second objection,—'The hairs usually break off at the point where they are invested with the vegetable covering.'

"In porrigo decalvans the hair falls out, bringing the bulb with it, through absorption of the adipose structure, in which the bulbs are included, and from which the hair draws its nourishment; the absorption of this matter produces the remarkable indentation or flattening in each bald patch, and constitutes the pathological nature of the disease.

"Now, in the common ringworm of the scalp, the porrigo scutulata of Willan, to whom we are indebted for the term decalvans, the hair does fall or break off, and is covered with an incrustation.

"Third objection: 'the vegetable nature of porrigo decalvans is a fact that speaks for the contagiousness of the disease.' Now, porrigo decalvans is not contagious, and this the professor may take for granted, as my opinion is not grounded on the result of a few stray cases, but from facts observed daily in this particular disease for some years back. The conclusion that I have come to is, that M. Gruby, and the promulgators of his hypothesis, have confounded one disease with another. I do not say with the porrigo scutulata only, for there are other diseases of the scalp with which those not practically acquainted with them may very easily confound it."—*Lancet*, Feb. 10, 1844.

Mr. Horne has M. Gruby completely on the hip.

RIMA GLOTTIDIS CLOSED BY WARTY VEGETATIONS.

The case was related by Dr. Stokes, at the Dublin Pathological Society. The patient was a house-painter, aged 34, admitted into the Meath Hospital. He had colica pictonum thirteen times, and his upper extremities had been para-

lysed three times. His voice had gradually become very weak, and about eight months ago, he became troubled with a cough and expectoration of a viscid mucus, but had neither hæmoptysis nor pain in the chest. At the time of his admission he was extremely emaciated; his countenance pale; lips blue; mouth, teeth, and tongue covered with sordes. His aspect was altogether that of a person suffering from profound disease, and whose constitution had completely given way. There was difficulty of breathing. On looking into the throat, nothing could be perceived but general relaxation. The uvula appeared enlarged, but there was neither ulceration nor cicatrix in the throat. The epiglottis felt healthy, and was not enlarged. There was no dysphagia, and no tumour in the neck. The respiration was sometimes difficult, sometimes easy and tranquil; there was never orthopnœa. There was occasionally stridor, but it was very slight, and only occurred when the patient was excited. The voice was very weak. The respiratory murmur was almost inaudible; sometimes some slight bronchial râles would be heard in the chest; sometimes a very slight degree of dulness might be perceived. The impulse of the heart was well defined, and the sounds normal. When the respiration was suspended by voluntary effort, the first sound of the heart became inaudible. The difficulty of breathing increased, but there were no violent paroxysms of it. The stridor would, perhaps, accompany three or four inspirations, and then intermit. At night there was some slight aberration of mind, but when roused he was perfectly intelligent. He had been despaired of from the time of his admission, and died in about a week afterwards. After death the body was examined. It was then found that the glottis was completely obstructed by a growth of warty vegetations round the lips of the orifice, which was so perfectly closed that water would not pass through into the larynx when poured upon it. There was nothing else of consequence.

There had been a case some time ago in the Richmond Hospital, the symptoms of which were great dyspnœa, occurring in paroxysms, with stridulous breathing and raucous voice. In that case the obstruction of the larynx depended on the growth of excrescences about the glottis; it was connected with syphilis, and was relieved by tracheotomy. In the present case there had never been any syphilitic affection.—*Dublin Journal*, March, 1844.

THE TETANIC FACE.

The late Mr. Colles, lecturing on Tetanus, says:—

"'It is very peculiar, and if once looked at with attention can never be forgotten. The forehead is wrinkled, both transversely and in the perpendicular direction, the eyebrows being drawn in a remarkable manner towards each other; the eyes are not fully opened; the nostrils more or less dilated; and the angles of the mouth drawn backwards and a little upwards. There is generally an expression of uneasiness, and slightly of apprehension: the mouth is not quite closed, and the teeth are seen; the body is sometimes hot and dry, but oftener the upper part is covered by perspiration, at times profuse.' Dr. Colles then remarks that, 'There is no disease which has been so often confounded with others as tetanus, although the symptoms are so well-marked. For my own part, I think the countenance would, in every case, be sufficient to distinguish it from all others. I never saw but one description of face, one tetanic expression of countenance; it is the same in all cases; it is the first thing that gives the alarm, and the last symptom to depart. Even where a patient recovers, and is able to go about his business, that tetanic face remains. I believe it never leaves him.'"—*Dublin Med. Press*, Jan. 31, 1844.

There is much truth, though, we think, a little exaggeration in this. The expression of Acute Tetanus, or of Chronic, during the spasm, is certainly characteristic. Even in the intervals of the attacks, the anxiety, combined with the perspiration, is peculiar. But we cannot say that we have observed any thing particular in the aspect of those who have recovered.

MR. M'DONNELL ON "PULSATING EMPYEMA OF NECESSITY."

What is "Pulsating Empyema of Necessity?"

"Pulsating Empyema of Necessity," means Empyema, which gives rise to an external tumour with a diastolic pulsation, and which bursts externally.

The paper itself is much better than its name, and deserves attentive perusal, although somewhat prolix. This, indeed, is a fault (they will think it a merit) which rather appertains to the lucubrations of our Dublin friends. If we cannot complain of the quality of their articles, still less can we do so of their quantity; the materials are more squeezable than squeezed.

All we can do, is to extract the last two pages of conclusions, from the forty-four of which Mr. M'Donnell's paper consists, again, and very cordially, recommending our readers to consult the original. The conclusions in question are these:—

1. That the cases related of "Pulsating Empyema of Necessity," exhibit some features common to that form of Empyema, and to thoracic aneurism and encephaloid disease of the lung.

2. That it may be diagnosed from thoracic aneurism, by
   a. The history of the case.
   b. The dulness extending over the whole side, the pulsation being only felt in the external tumour.
   c. The absence of thrill.
   d. The absence of bruit de soufflet.
   e. The extent and nature of the fluctuation.

3. That it may be distinguished from encephaloid disease of the lung and mediastinum, by
   a. The absence of the expectoration resembling *black currant jelly*.
   b. The absence of a persistent bronchitis.
   c. The absence of a varicose condition of the veins and œdema of the side affected.
   d. In cancer of the lung the situation in which the external tumours form, is not invariably confined to the thorax.

4. That copious purulent expectoration in empyema is not always indicative of cavities in the lung; but, on the contrary, is of frequent occurrence in this disease, and seems to be the result of an effort of nature to get rid of the purulent collection by the nearest and readiest outlet.

5. That this symptom, when it results from the above cause, is not attended with the usual symptoms either of abscess of the lungs, or inflammation of the bronchial mucous membrane.

6. That a *true* bronchitis of the sound lung frequently complicates empyema.

7. That still more frequently the sound lung becomes congested, and presents some of the ordinary signs of bronchitis and pneumonia, from both of which it may be distinguished by attention to the rules laid down in the previous part of this communication.

8. That in addition to *depression* of the liver, from mechanical causes, that organ is likewise *enlarged from engorgement with blood* in empyema.

9. This enlargement is not confined to empyema of the right side, but occurs also when the disease is seated in the left cavity of the chest.

10. That this enlargement is identical with that which takes place in other affections of the lungs and heart, where, in consequence of their functions being impaired, an additional duty is imposed on the liver, viz. *that of eliminating carbon from the blood*, as proved by the researches of Tiedemann and Gmelin, Elliotson and Liebig; and as occurs in the former cases, so likewise we observe in this, that the increased size of the organ is due to an additional afflux of blood, whereby its structure becomes engorged, softer in consistencè, and darker in colour.

11. This condition of the liver has been observed by myself, as proved by dissection, and its presence detected in other cases that have recovered. It has also been mentioned by many writers in their accounts of the appearances noticed at the autopsies of cases of empyema, who have recorded the fact, though unaware of its connexion with the subject under discussion, and it must now be considered as constituting an additional feature in the diagnosis and pathology of empyema.

12. This condition of the liver, when it occurs in the ordinary diseases of the heart and lungs, has been observed to disappear as soon as the obstruction to the circulation of the blood, and want of proper aëration, which gave rise to it, had ceased. So likewise in empyema, its disappearance is one of the first signs which indicate the removal of the effusion, and the return of the compressed lung to the performance of its functions.—*Dub. Journ.* March, 1844.

ABSENCE OF THE RECTUM.

At a meeting of the Medical Society of London, Mr. Pilcher exhibited a preparation illustrative of a case in which the rectum was entirely absent. The infant was under the care of Dr. Wright, of Westminister, who, considering the case to be one of the usual cases of imperforate rectum, made an incision with a lancet in the situation of the anus, but to his surprise no canal could be detected. Mr. Pilcher subsequently attempted, in vain, to find a passage with the finger, and in doing so broke down the cellular membrane of the neighbourhood, causing some ecchymosis, the blood from which, however, soon became absorbed. The child lived eighteen days, during which time it had no evacuation whatever. On examination after death the rectum was found absent,—the sigmoid flexure of the colon was thrown to the right side, carrying the cæcum along with it, and terminating in a *cul de sac*. The bladder, vagina, and uterus were well formed, and behind the two latter cellular membrane supplied the place of the rectum. Any operation, therefore, would have been of little avail, although had the real nature of the case been ascertained, an opening in the abdomen to communicate with the *cul de sac* of the colon might have been of temporary benefit.—*Lancet*, March 2, 1844.

QUARTERLY TABLE OF THE MORTALITY IN 114 OF THE DISTRICTS OF ENGLAND (INCLUDING THE PRINCIPAL TOWNS); SHOWING THE NUMBER OF DEATHS REGISTERED IN THE FIVE YEARS, THE AVERAGE NUMBER OF DEATHS IN THE FIVE SUMMERS, 1838—42, AND THE NUMBER OF DEATHS IN THE SUMMER QUARTER OF 1843, ENDING SEPT. 30.

The Quarterly Return, given in the above Table, is derived from 114 Districts,

33 of which are in the Metropolis; and the remaining 81 Districts comprise, with some Agricultural Parishes, the principal Towns and Cities of England. At the last Census (June, 1841) the population of these 114 districts was 6,534,535, or nearly *four-tenths* of the entire population. The average annual number of deaths registered in the 114 Districts was 163,193, or 47 per cent. of the total deaths registered annually in England—36,655 deaths were registered in the Summer quarter, being 428 less than the average of the five preceding Summers, which amounted to 37,083. This average, corrected for the increase of population, (which in the town-districts is a little more than 5 per cent. in three years,) becomes 39,053; hence it will follow that the decrease in the mortality has been to the extent of about 2,400 deaths.

The deaths registered in the previous Spring quarter amounted to 40,059 or to 3,404 more than were registered in Summer; which is conformable to the ordinary course of things.

The annual mortality of England is 2.2 per cent., and an extensive investigation of the mortality in all the statistical districts of the kingdom has shown that less than two per cent. of the population die in a great number of country districts, and in some town districts. In the Table now before us, and of which we endeavour to present a summary, it has been deemed advisable to print in juxtaposition—1st, the deaths which would have happened, if the mortality in the subjoined districts, which make quarterly returns, had been 2 per cent.—and, 2dly, in those districts the excess of deaths over the deaths which take place in districts of the average degree of health, having the same population. Thus the grand total number of deaths registered in three years, 1840—42, amounted to 491,999, whilst the number of deaths which would have happened if the mortality had been 2 per cent., would have been 392,072, showing that the number of persons who died in three years above the average of 2 per cent. amounted to 99,927. The deaths in the Isle of Wight, St. Albans, Windsor, Dorchester, St. Thomas, Stroud, Huddersfield, Cockermouth, Hollywell, and Anglesea, were *below* 2 per cent.

In the Metropolis, the total number of deaths from all causes (11,091) was a little over that of the average of the five preceding years, 11,020. With respect to the diseases prevalent during the quarter, we find that the deaths by epidemic, endemic, and contagious diseases (2619), exceeded the average of the five preceding Summer quarters by 187. Diarrhœa and Dysentery prevailed to rather an unusual extent, the deaths from the two diseases having been 572, which is 262 above the average (310). *Small-pox* proved fatal to 75 persons, and Scarlatina to 543, which is 99 more than the quarterly average. The 75 who died of small-pox contrasts very strikingly with 327, the quarterly average for the Summer quarters of the five preceding years. In seven weeks 63 persons died by Dysentery in the Greenwich Union workhouse. Cerebral, Spinal, and Nervous Diseases were less than the average. Pulmonary Diseases were less fatal than usual. The number of deaths by Heart-diseases was somewhat more than the average. The number of deaths by diseases of the Digestive Organs exceeded the average: the number by *Tabes Mesenterica*, more than doubled the average. Diarrhœa appears to have been equally prevalent in the country. The Registrars in the provincial districts also refer frequently to *Scarlatina*, *Measles*, and Enteritis as prevalent diseases.

Districts in which the mortality was *higher* than the summer average of the same districts; Portsea Island, Devizes, Dorchester, Shrewsbury, Kidderminster, Derby, West Derby (adjoining Liverpool), Wigan, *Chorlton*, *Manchester*, *Huddersfield*, *Halifax*, Bradford.

Districts in which the mortality was *lower* than the Summer average of the same districts: Brighton, Isle of Wight, Windsor, Wycombe, Colchester, Norwich, St. Thomas, Plymouth, Redruth, Bath, *Bristol*, Clifton, Worcester, Dud-

ley, Walsall, *Birmingham*, Aston, Leicester, Basford, Stockport, Bury, Prescott, Ashton, Leeds, *Sunderland*, *Newcastle-on-Tyne*, Carlisle, Kendal, Abergavenny, Pontypool, Merthyr Tydvil, Wrexham.

Meteorology.—The Barometer was higher than the Summer average, it having been 29.961. The temperature never rose so high as in the Summers of 1841 and 1842, but the mean temperature, 64°.6, was higher than in 1842, and 2°.5 higher than the average of ten Summers, ending in 1840, scil. 62°.1. The fall of rain was 5.662 inches, which is near the average, but it fell on only 23 days. In the Summers of 1841 and 1842, the rain amounting to eight or nine inches, fell on from 47 to 50 days. The season has therefore been fine and warm, the South and West winds prevailing.

METROPOLIS.

From the Summary of the Weekly Tables of the Mortality in the Metropolis for 1843, *published by Authority of the Registrar-General. General Register Office, Somerset House, Feb.* 1, 1844.

We select the following particulars :—

1841.	Population :	Males, 878,352—Females, 996,726—Total,	1,875,078.
1843.	Deaths :	Males, 24,961—Females, 23,613—Total,	48,574.

Number of deaths registered in the first quarter ending April 1st, was 12,312, of these 2071 died of epidemic, endemic, and contagious diseases; of the latter, 499 died of hooping-cough and 505 of typhus, 297 of scarlatina, 268 of measles, and 144 of small-pox.

The number of those who died of Diseases of the Nervous Centres was 2014 : of these, 735 died of Convulsions, 413 of Hydrocephalus, 255 of Apoplexy, and 234 of Paralysis.

3988 died of Diseases of the Respiratory Organs; of these, 1763 died of Consumption, 1144 of Pneumonia, 456 of Asthma, 251 of Bronchitis.

320 died of Diseases of the Circulating Organs.

769 of Diseases of the Digestive Organs; of these, 221 died from Teething, 170 of Gastritis and Enteritis, 117 of Hepatic Disease.

69 died of Diseases of the Urinary Organs, 158 (females) died of Disease of the Generative Organs; of these 112 died in Child-birth—77 died of Diseases of the Loco-motive Organs—23 of Diseases of the Tegumentary System.

1409 died of Diseases *incertæ sedis* —scil. Inflammation, Hæmorrhage, &c.—of these 459 had Dropsy.

267 died of violent deaths.

Of these 12,312 individuals, 6249 were males, and 6,063 females. With respect to the ages, 5210 were under 15 years, 4259 were between 15 and 60, and 2826 were 60 and upwards. With respect to temperature this quarter, the highest was 60°.0, lowest 23°.0, and daily mean 41°.8.

In the quarter ending July 1st, 11,433 deaths were registered—of these 2,409 died of epidemic, and endemic, and contagious diseases; of these latter 685 died of Typhus, 620 of Hooping-cough, 369 of Measles, 321 of Scarlatina, and 105 of Small-pox.

1824 died of Diseases of the Nervous Centres. Of these 530 died of Convulsions, 476 of Hydrocephalus—3380 died of Diseases of the Respiratory Organs, of whom 1843 died of Phthisis, 827 of Pneumonia, and 19 of Bronchitis.

313 died of Heart-disease, 826 of Diseases of the Digestive Organs, 1209 of Diseases *incertæ sedis*, 268 of violent deaths. Of the total sum, 5878 were

males, and 5555 were females. 5068 were under 15, 3942 between 15 and 60, 2358 60 and upwards. *Temperature.*—Highest 79°.7, lowest, 33°.0, daily mean 55°.4.

The quarter ending Sept. 30th has been already detailed in the Quarterly Table.

In the quarter ending December 30th, the total number of deaths registered was 13,738—of these 2909 died of Epidemic Diseases; of the latter, 464 died of Hooping-cough, 706 of Scarlatina, 450 of Typhus, 455 Measles, and 114 of Small-pox. 2047 died of Diseases of the Nervous Centres; of these, 750 died of Convulsions, 463 of Hydrocephalus. 4396 died of Diseases of the Respiratory Organs; of these, 1743 died of Phthisis, 1714 of Pneumonia,—of Heart-disease 320 died—981 of Diseases of the Digestive Organs—89 of diseased Urinary Organs—141 (females) of Diseases of the Generative Organs; of these, 98 died in Child-birth. 1387 of Diseases *incertæ sedis*, of these, 377 were Dropsies—283 violent deaths, of all these, 7047 were males, and 6691 females. *Ages*, 7221 were under 15—3813 between 15 and 60—2617 60 and upwards.

Temperature.—Observations discontinued at the Royal Society.

THERAPEUTICS.

ELECTRICITY IN CASES OF POISONING BY LAUDANUM.

Mr. Corfe, of the Middlesex Hospital, has related an instance of the good effects of electricity under these circumstances. A man was admitted, having taken an oz. and a half of laudanum on the preceding evening, six hours previously. "In the first instance I ordered the administration of the stomach-pump, at which period, to all appearances, he was a lifeless corpse; the pupils were contracted to a pin-hole in size; the pulse was intermitting, and not more than 40: the respirations convulsively performed at intervals of half a minute; the face livid, and the extremities bluish and cold. After the stomach had been relieved of its contents, green tea, with ammonia, was injected therein; flagellation with thin splints and wet towels, the cold douche, turpentine stupes and sinapisms to his calves and abdomen, were applied in succession, without the least improvement in his condition. The bladder was relieved of six or eight ounces of light-coloured urine by the catheter. I then thought of a most powerful remedy, which was attended with extraordinary success; I allude to the electro-magnetic battery, conjointly with electricity, which was set to work upon him soon after four o'clock. The pulse became more steady, firm, and frequent; the respirations more indicative of resuscitation. Our powerful electrical machine was now got into full play before a large fire, and the jar filled, when some brilliant sparks and strong shocks were occasionally passed through his head, spine, thorax, and abdomen."—*Lancet*, Jan. 27, 1844.

The result of this was, that the man opened his eyes, and his mouth too, abusing the operators for a pack of rascals who were "trying specimens" on him. But incomparably the most satisfactory effect was produced by giving him a shock on the tip of his nose. To use a phrase of the ring, he *rallied* wonderfully under this—a hint worth taking.

On the Influence of Opium on the Catamenial Functions. By James McCune Smith.

It has been generally taken for granted, that the use of opium is not attended with retention of the uterine or mammary functions. Dr. Smith has met some cases which give evidence to the contrary. He details the histories of five cases, in every one of which the catamenia were suppressed as long as the use of opium was indulged in. In the majority of these cases the opium had been given for various affections, chiefly as an anodyne. In two of them the catamenia returned as soon as the use of the opium was discontinued. In the last case mentioned by him, the opium was prescribed in consequence of a great increase in the quantity and frequency of the catamenia—the opium was continued until the discharge ceased; but the patient, without the knowledge of her medical attendant, continued the use of the drug for a year; the consequence was, the catamenia gradually diminished, and at the end of a year entirely ceased. She gave up the opium; and though she had recourse to emmenagogues, she could not succeed in re-establishing the discharge. All the cases mentioned by Dr. Smith agree in this one circumstance, that the arrest of the catamenia was not followed by the vital disturbances which attend their suppression from other causes. Opium is observed to possess the power of arresting periodicity.—*New-York Journal of Medicine*, Jan. 1844.

On the Effects of Opium on the Infant Subject. By John B. Beck, M. D. &c.

There is scarcely an article in the Materia Medica capable of producing more mischief than opium. This arises, as well from the nature of the effects produced by it, as well as from the want of uniformity in these effects. Thus it sometimes operates as a stimulant, sometimes as a sedative. Under certain conditions of the system it quiets irritation, calms the pulse, softens the skin, and promotes refreshing sleep, whilst under other states it quickens the pulse, suppresses the secretions, increases the animal heat and disturbs the brain. With respect to the effects of opium on young subjects, there are two facts which seem to be well established. The *first* is, that it acts with much *greater energy* on the infant than it does on the adult; the *second* is that it is more *uncertain* in its action on the infant than the adult. Hence it is that even the smallest quantities have frequently produced the most unexpected and even fatal results. Numerous facts of daily occurrence prove that opium acts with peculiar energy and uncertainty on the infant subject. The causes of this seem to be, 1st, the great difference in the physical organization of the *infant* and the *adult*. In the infant the brain and nervous system are much more impressible;—the circulation also is more rapid—there is a great quantity of blood circulating through the brain, and hence a greater tendency to cerebral determination. Hence the greater frequency of convulsions in the early periods of life. *Secondly*, the difference in the *temperament* or *constitution* of infants. It is well known that this difference exists in the case of adults. The sanguine temperament does not bear the use of this drug as well as the melancholic or the nervous. Now, infants differ from one another as much, if not more than adults. In the *third place*, the actual state of the system as to disease. This is found to modify the effect of opium, very considerably. Thus, for instance, when severe pain or spasm are present, great quantities of opium can be borne, which under other circumstances would prove very injurious. A child labouring under the acute pain of colic will tolerate doses which, in the ordinary condition of the system, might prove fatal. When

opium is given to children exhausted by bowel complaints with the view of checking intestinal discharges, it not unfrequently happens that insensibility gradually creeps over the little sufferer, and death speedily takes place. Here the child obviously sinks under the sedative influence of opium. From this action of opium on the infant Dr. Beck makes the following inferences: 1st, that its use should be avoided as much as possible in the young subject; 2d, great caution should be exercised in the form in which it is administered. No preparation should ever be used, which is not of a known and determined strength. The syrup of poppies is the preparation most used for children. It is liable, however, to great objections. It is apt to ferment and spoil, and to be very variable in strength. It is also liable to sophistication; a mixture of laudanum and simple syrup has sometimes been sold for it. 3dly. In very young subjects the use of this medicine should always be commenced in small doses. Under no circumstances, as a first dose, ought half a drop to be given to a child under ten days, or a drop to a child during the first month. One eighth of a drop is sufficient to begin with. With respect to the quantity to be given in enema, double the quantity given by the mouth is quite sufficient. 4. The doses of opium should not be repeated at too short intervals. Where repeated doses are necessary, the intervals should be sufficiently long to enable the child to recover somewhat from the sedative influence. The mischief done by opium administered by non-professional persons is incalculable. Such persons give it to children sometimes occasionally, sometimes constantly. The first mode is bad, the second much worse. In the latter case, the effect is to stunt the growth of the child: it becomes puny and emaciated—the skin is flabby and shrivelled, and the countenance sallow and wrinkled—the intellects become impaired, and the whole appearance haggard and aged. From a report made to the House of Commons, containing returns from the Coroners of England and Wales, of inquests held by them in 1837 and in 1838, in cases of death by poison, it appears that the total number of deaths by poison in these years was 543, of which 52 were very young children, killed by opium given by mothers or nurses.—*New-York Journal of Medicine.*

OBSERVATIONS ON THE INFLUENCE OF THE CLIMATE OF CANADA IN PREVENTING THE DEVELOPMENT AND STOPPING THE PROGRESS OF PHTHISICAL SYMPTOMS. By J. ORTON, Esq. Surgeon, Beaston, near Nottingham.

Mr. J. Orton, who has made some communications relative to the climate of Canada as a country highly favourable for the prevention of phthisical disease, acknowledges himself indebted for whatever information he possesses on the subject to some incidental communications received by him from his brother, Mr. Henry Orton, a medical practitioner practising at Guelph in Canada.

In the first communication received by him, his brother states that the first hint he had had regarding the anti-phthisical qualities of the climate of Canada, was from a Dr. Allen, a practitioner in his own neighbourhood, who, when he came out, had brought a letter of introduction to the Governor from Dr. James Johnson, who had written on the excellence of the climate of Canada for all scrofulous and phthisical affections, reckoning it far before the South of Europe. In this view Mr. H. Orton expressed his full concurrence, it being, he says, a certain fact, that a scrofulous or consumptive case is scarcely ever seen in Upper Canada. Dr. Allen instanced to him several families resident in Canada, who had emigrated from England, and who, in the old country, had suffered severely from consumptive disease, but who had never shown a symptom of the disease since they came to Canada; and other families who had suffered from scrofulous affec-

tions, in various forms, that had never given an indication of it here. Dr. Allen had been long a resident practitioner in Canada at the time he made this communication to Mr. H. Orton. This character of the climate of Canada was further confirmed by several other communications from the same source. Its efficacy in alleviating and removing asthma was also experienced. Mr. J. Orton had another instance of the salutary effects of the climate of Canada in the case of his own sister-in-law, who had had an attack of pneumonia, from which she recovered with very great difficulty; after the inflammatory symptoms had subsided there still remained a very troublesome cough, copious expectoration, night sweats, &c. which caused great alarm. She was advised to remove at once to Canada, where she soon recovered perfectly. It may be well to mention that the portion of the province of which Mr. H. Orton speaks to his brother, and to which alone he limits his encomiums, scil. the vicinity of Guelph, is an elevated dry, undulating region, remarkable for its salubrity; the excellence of this region seems to depend on its pure, dry tonic atmosphere, and its entire freedom from marsh miasmata. This locality, however, is not recommended for those in an advanced stage of phthisis.—From the *Edinburgh Medical and Surgical Journal*, Jan. 1844.

ON THE EFFECTS OF CHLORIDE OF ZINC AND CHLORIDE OF LEAD IN THE TREATMENT OF CANCER. By E. W. TUSON, F.R.S Surgeon of the Middlesex Hospital.

Case 1.—Anne Scammel, æt. 39, a cook, admitted into the Middlesex Hospital, November 12, 1839, with an extensive cancerous disease of the right breast and neck. An irregular ulcer extended from below the nipple towards the axilla, its surface superficial and edges hard. The whole arm became so much swollen, that she could scarcely use it or bring it to her side. The glands below the jaw and above the clavicle were greatly enlarged. The ordinary treatment for cancer was employed for about two months, without any amendment. In January, 1840, a paste was directed to be applied to the ulcerated surface, made of one part of chloride of zinc and three of flour; this was well mixed and moistened with water, and then applied over the entire ulcerated surface. The first application was ineffectual, and it was again used. It was also determined to give the chloride of zinc internally. Half a grain was ordered every morning in a wine-glassfull of carraway-water to be taken after breakfast. A lotion was directed to be applied to all the hardened parts, made of one dram of chloride of zinc to a pint of water. The second application of the paste produced great pain for four or five hours, when a slough was formed, which separated with the assistance of a poultice, and afterwards the ulcer healed kindly. The swelling in the arm gradually subsided—the breast diminished much, and the side of the neck assumed a more natural appearance. In a month from this time, the case had completely changed character. In several places there were small tubercles, six or eight, in different places, on the mammary gland, one or two in the neck, &c. The disease had now assumed the cancerous tuberculated form. The wound had healed. The medicine was continued for upwards of two months, the dose being increased to three-quarters of a grain. In the early part of April, further improvement had taken place. This, however, did not last long; towards the end of the month the mouth had become sore, as also the gums, so that the medicine was discontinued. The arm swelled again. Another ulcer appeared on the mammary gland, which was healed by the paste; when others again were formed. She died January, 1841.

This case illustrates the peculiar effect of chloride of zinc in cancerous disease—its external use is decidedly beneficial in open cancer. A solution of one drachm to a pint of water injected into a cancerous ulcer, or applied with linen

rage, has proved very useful. Other preparations of chlorine have an influence over cancerous affections—chloride of lime; chloride of lead; terchloride of carbon; perchloride of copper. A drachm of chloride of lead to a pint of water was found a useful lotion by the same surgeon, in a case of cancerous disease of the right breast; this was accompanied by the use of a draught containing 10 grains of *chloride of potassium* in carraway water: to be taken three times a-day. This draught was omitted, in consequence of its producing queer sensations in the hand, with loss of memory, and a sense of dullness over the head and eyes.

In the cases mentioned by Mr. Tuson, (only two in number,) a temporary improvement was certainly produced in the state of the ulcerations. The cases, however, terminated fatally.—*Lancet*, Jan. 13, 1844.

CASE OF FACIAL NEURALGIA SUCCESSFULLY TREATED BY ACONITINE.

June, 1842.—A Miss ———, ætat. 7, of nervous, hysterical temperament, has been troubled, for some months, with severe paroxysms of pain, affecting the left side of the face. The left side of the lip is much drawn up—the pain has occasioned no discoloration of the skin. Slight pressure gives great pain. Some tumefaction of the affected side. Sometimes has several paroxysms during the day; at other times an interval of a week intervenes—when they are most intense, she becomes hysterical.

Belladonna—veratrine—strychnine—quinine, &c. &c., were all tried without affording relief. At length it was determined to use acontine; and the following formula was employed:—R. Aconitinæ two grains, rectified spirits of wine, as much as is sufficient to mix it with two drachms of lard for an ointment. A piece, the size of a pea, to be rubbed into the face, on the access of pain. The ointment caused a twitching, stinging sensation of the skin, and, after a few trials, the paroxysms became diminished both in frequency and severity—it was used six times or oftener daily with marked benefit. The pain progressively diminished, and at length nearly ceased: it only appears on her taking cold; when the pain does come on, she has recourse to the ointment, which affords immediate relief.

The reporter of this case states, that the aconitine must be persevered in till all soreness of the affected parts has disappeared.—*Lancet*, Jan. 6, 1844.

TANNING A CHANCRE.

M. Ricord is unquestionably a man of crotchets. His vagaries are so manifold that he is a sort of a "Pacha of many tales." His last is to tan a chancre, and to make it drunk—why, Heaven only knows, unless it be for the sake of making blockheads gape, and other people stare, a motive perfectly a la mode and French. But for the process.

M. Ricord's favourite application is lint impregnated with aromatic wine. This is a decoction of sage, rosemary, thyme, hyssop, mint, &c. in eight times their weight of Burgundy wine. It destroys the contagious quality of the secretion from a chancre and *tans* the neighbouring parts, rendering them less susceptible. M. Ricord has now and then found benefit from the addition of from one to six per cent. of tannin to the foregoing, to promote the latter purpose.—*Prov. Journ.*

What stuff is this! Tanning the skin around a chancre to prevent the spreading of infection! If it is received into the *system*, it is by the absorbents passing

to the sore itself, and tanning the skin around cannot affect *them*. The spreading of the *mere sore* is prevented in one of two ways, or in both—by stimulating the part and exciting healthy action, or by acting on the system and through it, obtaining the same result. M. Ricord's wine and thyme, &c. are just a local stimulant and nothing else, and, no doubt, there are plenty as good or better—whilst the tanning is all a matter of moonshine. Et voilà tout.

On large Doses of the Nitrate of Potass.

Considerable difference of opinion exists among medical men with respect to the utility or safety of administering nitre in large doses. A discussion took place at the London Medical Society, Jan. 22, in which Dr. Johnson, Dr. Willshire, and Mr. Headland, expressed their conviction that the large doses of nitre taken by the patient whose case was under the consideration of the Society at the time, might have been the cause of inflammation and suppuration of the kidney. The patient in question had taken two drachms three times a day previous to the attack. Dr. Johnson stated on the occasion, that he had seen half-drachm doses very injurious to the stomach. Dr. H. Bennett considers the opinions delivered by the above gentlemen, with respect to the mischievous effects of such doses of nitre, to be wholly unfounded. Whilst he admits that nitre is an irritant poison, and that, as such, it may give rise to inflammation and perforation of the stomach, if administered in large doses, especially when given in powder, or in a very concentrated solution, he states from his own experience, that when largely diluted in a fluid, one or even two ounces may be taken in the four-and-twenty hours, not only without any toxical effects, but with great benefit. He mentions that M. Gendrin, physician to the Hopital de la Pitié, is in the habit of administering large doses of nitre in the treatment of acute rheumatism, and that he has recourse to no other therapeutic agent in the great mass of his cases. Whilst Dr. Bennett was clinical clerk and house-physician to M. Gendrin, he saw that *all* the cases of acute rheumatism which came into the wards were treated with nitre, in doses varying from six to twelve or sixteen drachms in the four-and-twenty hours, according to the age, sex, or constitution of the patient. With women, M. Gendrin and Dr. Bennett generally commenced with six drachms, rapidly increasing the quantity to 8, 10 or 12. With men, they generally began with an ounce, gradually increasing the dose to 10, 12, 14, or 16 drachms. He acknowledges, however, that in the great proportion of cases, M. Gendrin did not exceed the dose of 12 drachms, or approve of its being exceeded. The salt was always given dissolved in a large quantity of barley-water sweetened with sugar, the proportion being about half an ounce to a pint and a half or two pints of fluid. This was the *only* beverage allowed the patient. In this large number of cases Dr. Bennett never remembers to have even once seen any toxical effects. The secretions of the skin and kidneys were generally increased, and sometimes those of the intestinal canal; the principal action of the nitre, however, was that of a sedative, and it is to its sedative action that its beneficial effects in rheumatism may be ascribed.—*Lancet*, Feb. 10, 1844.

PHARMACY AND MEDICAL JURISPRUDENCE.

Appearances in an Infant poisoned with Dover's Powder.

In an infant, seven weeks old, who died twenty-four hours after having ten grains of Dover's powder, by mistake, the following were the main appearances observed by Mr. Griffiths, of Hammersmith.

"The liver was gorged with blood. The stomach contained a very small quantity of colourless viscid matter. The inner coat very vascular at the great curviture; and in other parts were small patches of highly injected vessels. In the cavity of the abdomen was about half an ounce of fluid.

"The lungs were gorged with blood, which ran freely from incisions made into them. The upper lobes infiltrated with greenish serum. The pericardium was very vascular, and contained about a drachm of fluid. The right auricle empty. The left auricle and right ventricle contained solid fibrine. The left ventricle some thin fluid blood, and a small coagulum. The thoracic aorta was partially filled with coagula. That blood which was fluid was remarkably thin and light coloured.

"The sinuses of the dura mater were filled with dark coagula. The surface of the brain appeared covered by a complete net-work of vessels distended with light-coloured blood. On the surface of each posterior lobe of the cerebrum slight extravasation had taken place. The brain was soft, and the difference of colour between the grey and white matter barely discernible. The vessels in the substance of the brain were gorged with blood, presenting, when it was sliced, a thickly-studded appearance; the spots of a deep dull red, and in many places coalescing. There was a small quantity of fluid in each lateral ventricle, and along the floor of each were seen large distended blood-vessels. There was serous effusion on the surface and at the base of the brain, to the amount of about half an ounce.

A careful analysis of the stomach and its contents, with a view to discover morphia or meconic acid, was followed by negative results."—*Med. Gazette*, March 8, 1844.

A New Salt of Mercury and Quina.

The combination of oxymuriate of mercury and tincture of bark has been long known as a remedy for the treatment of scrofula and enlarged mesenteric glands, also in the treatment of strumous ophthalmia. This combination is well known to be unchemical, the salt being decomposed by the bark. Mr. R. N. M'Dermott of Dublin, convinced of the value of a combination of the active principle of the barks with a salt of mercury—"a combination which, according to the concurring testimony of various physicians, accelerates, in a remarkable manner, the constitutional action of mercurials, was brought to think that a definite compound might be formed in which the bichloride would perform the part of an acid, and the alkaloid quina form the base, and which would combine the therapeutic value of these two important substances." On trial he found the results were exactly as he had anticipated. He obtained a double salt, a proto-chloride of mercury and quina, chemically combined. On subjecting it to the strictest analysis, no trace of bichloride could be detected. The intimate combination of the active principle of the bark with mercury in the form just indicated, will, in his opinion, render it less liable to produce the ill effects of mercury on some constitutions, while its efficacy as a general remedy must be much enhanced. He anticipates that the combination of these two agents will rarely fail of producing a happy result in diseases of the eye generally, but especially when scrofula is present.—*Condensed from the Dublin Medical Press*, March 13, 1841.

CASE OF POISONING BY THE BICHROMATE OF POTASH.

(Communicated to the Med. Gazette by G. Wilson, M. R. C. S. E. Feb. 19, 1844.)

William Rothery, ætat. 64, has been for some years the subject of melancholy, in consequence of reverse of circumstances. He had once attempted to commit suicide by hanging. On the 13th of Dec. 1843, he walked from Huddersfield to Leeds, bringing a sum of money to his son-in-law, who resided in the latter place. This money he lost somehow on the journey. On arriving at Leeds, he went to his son-in-law's house, seeming dejected at his loss, and after drinking about a pint of home-brewed beer (of which the former also drank repeatedly), he retired to bed about 11 o'clock, P. M. His grandson, who slept with him, stated that he snored very hard, and on the following morning, he was heard by several members of the family to be breathing loudly, as they passed his door; but this being usual with him, they took no notice of it. At about 11 o'clock, however, in the forenoon, his daughter went to call him up and found him dead. Mr. Wilson, surgeon, was immediately sent for. He found him lying on his left side, in an apparently easy posture, the lower extremities a little drawn up to his body—his left hand under his face—countenance pale, placid and composed; eyes and mouth closed; pupils dilated—no mark, or remains of vomiting or diarrhœa—surface moderately warm. On searching his pockets there was found about half a pound of black powder, which was a sample of new dye-stuff he had brought for the inspection of some dyers at Leeds. A post-mortem was ordered the same evening. Nothing abnormal found either in the brain or thorax. On opening the abdomen, the viscera were found to be loaded with fat—the liver contained several hydatids—gall-bladder shrunk, and nearly empty. The stomach was removed in the usual manner, ligatures having been applied to the lower part of the œsophagus and commencement of duodenum. On opening stomach, nearly a pint of black, turbid, inky-looking fluid was discovered. The mucous membrane was red and vascular, especially at the union of the cardiac orifice with the œsophagus—the redness probably owing to the intemperate habits of the man. This redness did not extend into the œsophagus or duodenum—no dark stains observable upon the mucous surfaces of these, or any other part of the intestinal canal—there was here a well-founded suspicion that poison was the cause of death—the similarity of colour of the contents of the stomach with that of the dye found in his clothes, pointed to the latter as that which contained the poison. On an analysis being made, they were found to be precisely the same, both containing a considerable proportion of bichromate of potash. Besides this, the bulk of the dye-powder was composed of bitartrate of potash and fine sand. From the post-mortem appearance, it would appear that the salts of chromic acid act on the body rather as sedative than irritant poisons. The mode of death also, by syncope or coma, leads to the same conclusion.—(*Medical Gazette*, March 1, 1844.)

FORMULA FOR PRECIPITATED CHALK.

The Editor of the Pharmaceutical Journal observes, that the extensive use which "precipitated chalk" has recently acquired, as a substitute for the impure "prepared chalk," and the high price which, until lately, has been charged for the former as compared with the latter, have led to several inquiries from correspondents, as to the best and most economical method of making a good "Creta Precipitata." The process that he recommends is this:—

Take of White Marble 1 part.
Pure Hydrochloric Acid, 2½ parts.
Carbonate of Soda (crystals), 3 parts.
Water, a sufficient quantity.

Dissolve the marble in the hydrochloric acid, previously mixed with two parts of water, and dilute the solution with four parts more of water. Dissolve the carbonate of soda in twelve parts of water. Mix the solutions, and collect, wash, and dry the precipitate.—*Pharm. Journal*, March, 1844.

COCHINEAL IN HOOPING COUGH.

Dr. Allnatt tells us, that he has employed this remedy for the last twenty years in hooping-cough with the most satisfactory results. A peculiar acid is generated in the system by the disorder, which may be detected in the excretions from the stomach, and which, in my opinion, is the exciting cause of the spasmodic action of the glottis, producing the "whoop." It is obviously desirable, therefore, to neutralize this acrid condition of the first passages, in order to obtain the full advantage of the antispasmodic and anodyne properties of the cochineal; and for this purpose the *alkaline solution* is invaluable. It is of a deep purple or violet hue, will keep a long time without change, and the active powers of the cochineal are not impaired by the combination.

The following is the form:

Take of Carbonate of Potassa, a drachm
Cochineal, a scruple
Boiling water, eight ounces
The dose is a teaspoonful three times a-day.—*Ibid.*

PRESERVATION OF LEECHES.

Mr. Buckle communicates to the Editor of the Pharmaceutical Journal his plan of preserving leeches, which he says answers well. The description will be intelligible enough without the sketches which accompany the original paper.

The vessel No. 1 is of four gallons capacity, of unglazed earthenware, perforated from the top to within four inches from the bottom, fitted with a lid ground tight and secured by two iron clamps, which may be fastened by a padlock if required; at the bottom of it I put a quantity of smooth pebbles, about the size of a common pea, under which I frequently find the leeches concealed, and particularly in the cold weather. The vessel is then placed in a cistern, pond, or stream, the latter I consider best if at hand, having adopted it myself with success. In this manner I have kept my leeches for more than six months, and even during the heat of last summer, I did not lose upon an average more than one or two per week, and in the cooler months I rarely lose one. The vessel No. 2 is of one gallon capacity, and is intended for the shop; it is perforated round the top, but not in the lid as other pots, consequently anything being accidentally splashed upon it, cannot injure the leeches. The lid is ground air-tight, and secured precisely upon the plan of the Cooper's air-tight jar: the advantages of which must be obvious—it may be removed and replaced in a few seconds, and securely too, another great advantage; I also put a few pebbles into this pot. The vessel No. 3 is of half-a-pint capacity, used more for convenience of transit of leeches to Surgeons, &c. The lid of it is perforated and secured as the jar No. 2.—(*Pharmaceutical Journal*, Feb. 1, 1844.)

Sale of Spirits of Wine.

The Council of the Pharmaceutical Society were advised by their counsel, to whom they had applied respecting the actual state of the intricate laws on the sale of spirits of wine, to adopt measures for obtaining an alteration in those laws, as the only means of relieving chemists from the annoyance to which they are now liable, it being at present illegal to sell spirits, under any circumstances, without a license.

The Council appointed accordingly a deputation to confer with the Government. On the 21st of December, the deputation had an interview with the Chancellor of the Exchequer in presence of the Chairman of the Board of Excise. The Vice-President described the present annoyances to which the members of the trade were exposed, and respectfully requested that the matter might be taken into consideration, with a view of introducing some alteration in the laws, which might remedy the evil. To this the Chancellor of the Exchequer replied, that however desirable it might be to enable the chemists to sell spirits of wine, the privilege, if granted, might lead to great abuses in many ways. To this it was respectfully suggested that the rectified spirit required and sold by chemists, was not adapted for use as a beverage, and that it was not kept by licensed victuallers, &c. The Chairman of the Board of Excise stated that the great discretion exercised by the Excise in enforcing the penalties in every case, ought to be considered a sufficient protection to Chemists and Druggists. After further conference, a brief Memorial, embodying the prayer of the Council was placed in the hands of the Chancellor of the Exchequer, who promised to give the subject his serious attention.—(*Pharmaceutical Journal*, Feb. 1, 1844.)

Confectio Ferri Composita.

Mr. Heathcote, of Gosport, gives us a formula, which, he says, is in frequent use in Bath. The "Clinkers" may be readily got at any blacksmith's forge.

Take of Clinker, freed from all impurities and reduced to an impalpable
powder - - - - - - - - - - 8 ounces
Carbonate of Magnesia - - - - - - $\frac{1}{2}$ an ounce
Powdered Ginger - - - - - - - - 1 drachm,
Treacle a sufficient quantity to form the whole into an electuary.

SURGERY.

Cases of Polypus Uteri treated by Ligature, &c. By P. Murphy, M.D. (Provincial Medical Journal, Sept. 23, 1843.)

It appears that Dr. Murphy has treated seven cases of Polypus Uteri, one of them, alone, unsuccessfully. In each case the woman was married, had a family, and had not ceased to menstruate. The symptoms were similar—namely, hæmorrhage and leucorrhœa, producing anæmia. The discharge, unless retained by the size of the tumour, was not *fætid*.

Dr. Murphy concludes that the removal of a polypus is attended with little danger or difficulty. "If small, it is soft and vascular, its shape is nearly circular, and the ligature does not hold on well, and if excised there is a risk of hæmorrhage. This is dangerous, for the slightest *sudden* loss of blood from an

operation cannot be well borne, as the woman is anasarcous and exhausted before she submits. However, this may be easily guarded against by filling the vagina with lint or tow, and if torsion be previously practised, the security is increased."

Whatever may be the advantages of *excision*, the risk of hæmorrhage must always be a weighty item against it.

When the polypus is very large, the ligature must necessarily be resorted to. Its application is not attended with difficulty, but the subsequent removal of the polypus is troublesome. Dr. Gooch mentions one or two cases where uterine pains came on, and assisted the expulsion, and in another he succeeded with his hand.

A tenaculum is not sufficiently strong, and, moreover, sharp-pointed instruments should be avoided. On the other hand, it is very difficult to fix the tumour longitudinally in a forceps.

The polypus is reduced in size soon after the application of the ligature. The recovery is generally rapid. After the operation "we cannot too soon commence a tonic treatment." Dr. Murphy concludes:—

"First, That polypus is not a disease of the virgin state.

"Secondly, That it usually appears before menstruation ceases.

"Thirdly, That it is more frequently met with in the parturient than in the barren woman."

We have already stated that, of the seven cases which occurred to Dr. Murphy, one was fatal. We allude more particularly to that, as Dr. Murphy seems to us to labour under an ignorance of its real nature.

Case.—Mrs. C. aged 43, married, and having a family, had laboured under menorrhagia for three years. The polypus was in the vagina, and of the size of a closed hand. On the 14th June, 1840, the tumour was tied by means of Gooch's double canula. We copy the following reports as they stand:—

"19. Has had an attack of bronchitis, which yielded to a solution of tartar emetic; pulse 100.

"21. On yesterday was ordered ale, which was too freely taken; a severe rigour ensued, followed by perspirations. To-day there is vomiting, and a tenderness of the abdomen, especially in the hypogastric region. The diet was lowered; calomel and opium were freely given, and on the succeeding day the vomiting and pain had ceased. The ligature was then tightened, and the diet increased.

"25. The canula was removed without effort; the discharge has been fœtid since the operation: the polypus is shrunk: pain is felt in the epigastric region.

"26. The pain continued, increased, and was attended with vomiting. Owing to a mistake on the part of the friends, no remedies were used, and she died at half-past two o'clock, a. m.

"*Necrotomy.*—Abdomen distended; adhesion of the peritoneum was general, slight, and recent, but more firm in the pelvic region; some sero-purulent fluid in its cavity. Liver small and pale. Left ovary converted into *numerous thin, transparent cysts*, containing a viscid, straw-coloured fluid. Right ovary could not be traced, but in its site, and close to the uterus, was an abscess, which had given way, and, on being fully opened, its walls were found gangrenous. It was removed along with the uterus, and it was plain it had no communication with any of the viscera. It was evidently gangrene of the ovary. The uterus was thrice its usual size. On being opened, the attachment of the polypus was inferred to have been on the posterior surface beneath and between the Fallopian orifices, and about one inch above the os-tincæ, for there was a rough, flocculent appearance, about the size of a crown-piece, and resembling that which is noticed when the placenta is removed. The polypus lay loose in the vagina, and it required some degree of force to draw it through the os-externum with a tenaculum. Not the slightest portion of it could be discerned in the uterus. Her

death was solely attributable to a gangrenous abscess of the ovary, bursting into the abdominal cavity, and it is remarkable that this should have taken place almost simultaneously with the detachment of the polypus."

We have narrated the preceding case at length, because it is an instance of what occasionally occurs after the ligature of uterine polypus. The patient goes on pretty well for a few days—she has then a rigour, generally accompanied or succeeded by vomiting—perhaps the rigour is repeated, with profuse sweats—the pulse becomes and continues frequent—there is obscure tenderness of the abdomen, more particularly of the hypogastrium—the belly grows tympanitic—and after a week, or ten days, or more, she dies.

When she is opened, there is found some trace of a low sort of inflammation of the peritoneum, more especially about the pelvis—suppuration, perhaps, in an ovary—pus possibly in the Fallopian tube—a more or less inflamed or sloughy state of part of the internal surface of the uterus—it may be distinct uterine phlebitis—nay, secondary inflammation of the pleura or the pulmonary tissue, or even purulent deposits elsewhere. Can any one doubt, who has witnessed uterine phlebitis, or "puerperal fever," upon any scale, and the secondary consequences of common injuries and operations, can any one, we say, doubt that this case is one of diffuse inflammation of a low kind, creeping from the uterus, where the ligature has set it up, along the Fallopian tube to the ovary, and thence to the peritoneum—or, that, in another case, there has been a real uterine phlebitis—while, in a third, there have occurred the secondary inflammations or deposits? If any one does doubt this, he must have little experience and less faith. For our own parts, we protest that *we* have no sort of doubt of it whatever. We have seen two such cases ourselves, have heard of several, and, unfortunately, have a third under our charge at this moment. We fear that the issue will be, as it too generally is, fatal.

We hope that Dr. Murphy will reconsider his supposition, of the accidental coincidence, in his case, of the abscess of the ovary with the operation on the polypus. He may depend on it, that it was the consequence of the operation.

Spina Bifida.

At a meeting of the Surgical Society of Ireland, Dr. Mitchell related the following case.

The person who gave birth to that malformation had been first seen by one of the pupils of the South-Eastern Lying-in Hospital, and when he first saw the fœtus he took it for a case of spina bifida anterior, from the strong resemblance which it bore to Cruveilhier's specimen of that affection. It proved, however, to be an extraordinarily large specimen of spina bifida posterior situated in a very unusual place, inasmuch as that it extended from the third cervical to the fifth dorsal vertebra, the spinous processes of all the intermediate vertebræ being deficient. The bones of the head had been also arrested in their development, and their positions much altered—the petrous portion of the temporal bone occupying the situation of the occipital. The brain was enclosed in a cyst, having a division down the centre, and communicating with the sac that covered the spine. The thoracic viscera were all natural, with the exception of the heart, which was of a disproportionate size. The abdominal viscera were quite normal; and one of the most striking facts in connexion with the monster was, that the platisma myoides was developed to a most extraordinary degree. The creature lived for about twenty minutes.—*Dub. Med. Press*, Dec. 27, 1843.

There was long discussion on two points—the influence of the mother's imagination on the fœtus in utero—and the treatment of spina bifida. The result

of the first was that nothing is known, though much is believed, upon the matter—of the second, that, perhaps, no treatment is as good as any.

TREATMENT OF BURNS BY CARBONATE OF SODA.

Mr. Peppercorne writes thus to the Editor of the Medical Gazette.

"In two cases of severe burns of the hand that have fallen under my care within the last three months, I have employed with great benefit, the application of a single layer of lint soaked in a saturated solution of the 'carbonate of soda.' This simple remedy had the effect of completely relieving the distressing burning pain in the injured cutis, provided the part were kept constantly moist. In less than two hours all pain had entirely subsided, and the solution was no longer required."

We should have liked to know the *degree* of burn. Was it the *liquid* dressing or the *alkali* that gave relief?

BLOOD IN THE ANTERIOR CHAMBER OF THE EYE.

Mr. Holmes Coote, Surgeon to the North London Ophthalmic Institution, has made a few sound remarks on this subject, in a late number of the Lancet, (Jan. 27, 1844.)

The effusion of blood may be the result of a mechanical injury, or of extravasation from the vessels independently of violence. The thing, *in itself*, is of much less consequence than it appears. The anterior chamber does not very readily inflame. The membrane of the aqueous humour possesses great absorbing as well as secreting powers, and can remove a very considerable amount of effused fluid in a very short space of time. Many surgeons are in the habit of regarding these accidents in a serious light, and seem to imagine that they require the immediate abstraction of blood in large quantities, and the administration of mercury in such doses as rapidly to affect the system. Professor Yungken of Vienna, has even advised a section of the cornea to let the blood escape! Whoever should do so would find that no blood would flow, it being, of course, coagulated. Mr. Coote observes:—

"The truth is, we may content ourselves with doing little in these cases. When we are satisfied that the structure of the eye is not seriously damaged, we may rest assured that the simple extravasation of blood is an evil easily remedied. A moderate cupping or leeches, should there be pain. A few doses of opening physic, attention to diet, rest, and a cold lotion, are all the measures ordinarily required. Should inflammation of any tissue subsequently arise, it must be treated in the usual way."

On one point we most cordially agree with him—in denouncing the exhibition of mercury, unless it be *positively* necessary. Every day brings instances under our notice of the evils resulting from the reckless administration of this medicine.

ON THE TREATMENT OF LATERAL CURVATURE OF THE SPINE. By DR. MARSHALL HALL.

Dr. M. Hall adverts to the various plans of treatment hitherto proposed for the treatment of spinal curvature, scil. posture, stretching, pressure, stays, rubbing, exercises; and, admitting that each of these means may possess certain efficacy,

expresses his opinion that each has been attended by its injurious consequences. The plans for the treatment of curvature of the spine proposed by Dr. M. Hall, have several objects in view. The first is the restoration of the natural form. The second is, the re-nutrition of the weak and emaciated muscles. The third, the restoration of the health, and vigour of the general system. His first object he proposes to accomplish by supports applied to the curvatured form, so constructed as to give the most perfect support without inducing the least injurious pressure, either on parts too protuberant, or on others, as the axilla or the ilium, taken as points of support. He advises that the patient be artificially made to assume the straight or perfect form by means of posture, stretching, and pressure; this being done, he recommends that a cast of the bust be taken in plaster of Paris; from this cast that a mould in wax be taken; lastly, that in this mould stays of steel be accurately fitted, (or let copper be deposited by means of the electrotype, and sawn in two vertically.) This is to be covered and lined with soft leather, and slight wadding, and fixed and worn in the ordinary manner, drawn to the proper degree of tightness. It is evident that when these stays are put on and fastened in the recumbent posture, the bust *must* retain the perfect form, although the patient may assume the erect posture; that no injurious pressure will be made on any part, and that there is no constraint whatever. In order to accomplish the restoration of nutrition in the atrophied muscles, Dr. Hall recommends inducing, by means of rubbing, what he designates *counter-muscular effort.* This is to be accomplished by friction along the spine, which act, according to Dr. M. Hall, calls into action *at will* those muscles of the spine which have become atrophied from inaction.* By means of the stays the morbid extension is removed from the stretched muscles. By the friction and counter-effort of these muscles they are nourished. By both means they are rendered efficient in their office of supporters and movers. The hoop, the skipping-rope, &c., in the *free open air*, or whilst inhaling the *sea-breezes*, are the only available exercises.—*Lancet*, Feb. 3, 1844.

EXTIRPATION OF OVARIAN TUMOURS.

This is *the* surgical subject of the day. Our own opinion has been already expressed. It *is* the *fashion* just now to open the abdomen and cut out the ovary. It *was* the *fashion* last year to lay violent hands on every squinting man, woman, and child, and cut his, her, or its eyes out. A pitiful spectacle, and the current version of the old story of Panurgus's sheep. Will it never be otherwise? Will the mass of men be always under the influence of the whim of the hour—always run after novelty, because it is novelty—be always led by the nose by the quack or the enthusiast? For our parts, we firmly believe that they will. Populus vult decipi—decipiatur, will be just as true in the 40th century as in the 19th.

But with what face can we reproach the public for its encouragement of quackery, when we, the profession, who arrogate to ourselves science, and experience, and judgment, and so forth, show ourselves, on all occasions, so credulous, so whimsical, so apt to take up and put down all sorts of notions and of practice? It is the Devil reproving Sin, and the world sees it.

---

* What a pity Dr. M. Hall did not announce the *fact* of the beneficial effect of friction on the hitherto inert muscles, without troubling us with the *ratio facti*, scil. that the excitation of action in the inert muscle was proportioned to the pressure made over them, on the principle that "action and re-action were equal and opposite!!" We always thought this law referred only to mere inert *matter* (dead), and not to *inert muscle.*—*Reviewer.*

But to return to the extirpation of the ovaria. We believe there are cases in which it is justifiable, and offers a fair prospect of success. But we believe, also, that if it is resorted to as frequently as it has lately been, and seems just now likely to be, the result will be any thing but creditable to surgery, or consoling to humanity. In short, there is a *rage* for the operation, which is neither more nor less than an abuse of it.

We have three unsuccessful cases to record—one by Mr. Walne—another by Mr. Greenhow—and a third by Mr. B. Cooper.

1. *Dropsical Ovaria removed by the Large Abdominal Section, by D. H. Walne, Surgeon.*

Mr. Walne was requested, in the month of August last, to visit Miss N———, residing near Kingston, who was considered to be the subject of ovarian dropsy, attended by rather unusual circumstances. She had been previously tapped very frequently, and at one time was relieved of her complaint, in a very remarkable degree for several months, under circumstances which led to the belief that a cyst had given way spontaneously, and its contents been taken up by the peritoneal absorbents. At the tapping performed before Mr. Walne saw her 25 pints of water had been drawn off. Notwithstanding the reduction of her size thus occasioned, the abdomen remained much distended, with distinct fluctuation high up. There was also considerable hardness, chiefly towards the left side, and moveable; and, on further investigation, the true pelvis was found occupied with a very solid body, the os-uteri being situated very forward towards the symphysis pubis. The recent tapping had been performed in the linea alba, and the relief from it being very incomplete, Mr. Walne suggested the use of the trocar at another point, above and to the left of the umbilicus, where the abdomen was very prominent. Some days after, on another visit, Mr. Walne suspected the existence of ascites combined with a large encysted dropsy. She was now brought up to London, and on Oct. 3d was again tapped, when about 50 pints of fluid were drawn off from the situation of the earlier tappings, viz. the linea alba below the umbilicus. A little before this, during her visit to London, she expressed both to Dr. Blundell and Mr. Walne her desire to be operated on, from which both these gentlemen endeavoured to dissuade her—ultimately, however, at her own urgent desire, they consented to the operation. Oct. 19th. The arrangements being made, as in the second and third cases,* the patient was seated, and half-reclining, her feet firmly planted apart upon the ground, and an ample receptacle placed between them, for the fluid that would be discharged. An incision of two inches in the integuments, &c., in the linea alba, below the umbilicus, was made down to the peritoneum, which was then punctured with the scalpel, and an opening made into it large enough to admit a finger. Ascitic fluid flowed abundantly. The operator now passed a finger into the cavity of the abdomen, to ascertain with certainty, the condition of matters, and found an ovarian tumour freely moving in a vast collection of ascitic fluid. The pedicle of this tumour, formed by the left broad ligament of the uterus, was pierced by an armed needle and tied in halves, and then divided between the ligatures and the tumour. When the latter had been removed, Mr. Walne's next object was to ascertain the character of the hard body which occupied the pelvis. It was found, on drawing it up from its situation, to be an indolent fibrous tumour of the uterus, nearly the size of a full-grown fœtus—it was not removed. The wound was now closed, as in the former cases. Five gallons of ascitic fluid had been collected, and a tumour removed of 14lbs. weight, nearly five of which were solid matter, the rest a gelatinous semi-fluid of various degrees of tenacity, and contained in cysts of various sizes. Here and there, also, a moderate-sized

* See Med. Chirurg. Review, Jan. 1, 1844.

cheesy nodule was visible or prominent upon its surface; and, at the lower end of the flattened ovate body, an appearance denoting the rupture of a former cyst was very evident. Through the remains of a straight rent the principal cyst protruded, in a rounded form, partly overlapped by the edges of the rent, which edges were separated in turn by the bulging cyst. The patient having borne the operation well, was placed in bed. Towards its conclusion a little brandy was given to her, and an anodyne afterwards. She went on apparently in a rather favourable manner, with occasional attacks of vomiting and flatulency, up to the morning of the 28th, when the servant, who was staying up with her, thinking her not well, called up the medical gentleman residing in the house with her, to see her. He found her very uneasy, suffering from flatulent distention, and pain in the upper part of the abdomen on the right side. She had been sick, and her pulse was from 114 to 120. Some soda water with a little brandy was given her. At eight o'clock in the morning Mr. Walne was called to her—most alarming symptoms had come on—the pulse above 140, thready and feeble—vomiting constant—feet and hands cooling rapidly and becoming livid—clammy perspiration—moaning—complained of uneasiness in the right side and across the abdomen, and of great distention—she died at eight in the morning.

Post-mortem.—The external appearance of the wound evinced the deficiency of reparative power. Many of the points of skin where the suture-threads had penetrated were open. On throwing back a large flap of the abdominal parietes, so as to exhibit the wound in the peritoneum, nothing could exceed the beautiful perfection of the internal repair which had taken place throughout a very large portion of the entire wound; in fact, it was with some difficulty the wound in the peritoneum could be discovered. At the place where the operation of tapping had been last performed, and where the skin, at the same time the incision was made, was still slightly red, and a little elevated, there was an opening of the side of a large quill. A quantity of serous fluid had escaped at this opening on the body being moved before the arrival of the medical men, and there was now a communication between the air and peritoneal cavity. The connexion between the edges had probably been dissolved by suppuration within the last few days, at a time when the other parts seemed to retrograde. Below this quill-sized opening the same complete union of the lately divided peritoneum was observed, extending downwards, till it reached a part where the peritoneum and other textures of the abdominal parietes had lain upon the rounded surface of the indolent uterine tumour above-mentioned. Here attempts at adhesion had been made in vain. Suppuration had been substituted. The viscera generally were healthy—intestines distended with air—uterus elongated and flabby, its back and fundus occupied by the large fibrous tumour of the ordinary character of that structure, and the front wall by a smaller tumour of the same kind, about the size of a French walnut.—(*Condensed from Medical Gazette*, March 1, 1844.)

2. *Removal of a diseased Ovarium, terminating fatally on the Seventh Day after the Operation. By T. M. Greenhow, Esq. Communicated by Sir B. C. Brodie, Bart.*

The patient was 29 years of age and married—for four years she had suffered from discharges of blood from the uterus. Eighteen months ago, six after her marriage, the swelling in the abdomen commenced at the pubic region, and rapidly increased until it attained a large size, her strength declining in consequence of the uterine discharge. The abdomen was tapped; only a little blood escaped; but afterwards nearly a quart of dark-coloured fluid was discharged from the wound daily, for a fortnight. Before the operation for removing the tumour, which took place Sept. 3, the abdomen was about as large as at the full period of utero-gestation—fluctuation in one or two points—tumour generally firm, and felt as if divided into several masses. The incision reached from a little below the ensiform cartilage to near the pubis. Several adhesions existed—

the principle one was to the omentum. These adhesions were divided with the bistoury, and then the tumour was raised from its situation—double ligatures were applied, and the tumour was removed. But little blood was lost—great retching and vomiting followed; pulse quick—tenderness and distention of abdomen. Died on the morning of the seventh day.

Post-mortem.—Folds of intestines and omentum were glued together by recently effused lymph. Inflammation, with points of ulceration, near pyloric orifice of stomach—uterus healthy—cavity lined with a vascular membrane, like the decidua. The morbid growth had been attached to the left broad ligament. Tumour weighed 12lbs. 7oz.—was more than two feet in circumference. With the exception of a few cysts containing a yellow fluid, the general mass was composed of a dense and vascular cellular structure. The fatal termination was probably caused by the disease in the stomach.

3. *Extirpation of an Ovarian Cyst. By Bransby B. Cooper, F.R.S.* The patient, aged 32, was married for four years without having children. She had frequently suffered from dysmenorrhœa and leucorrhœa. Five years before admission her abdomen became enlarged. Mr. Cooper then pronounced the case to be one of ovarian tumour. She was tapped on two different occasions, and about three gallons of straw-coloured fluid were drawn off each time. Abdomen measured about 3½ feet in circumference. Mr. Cooper determined on performing the major operation. An incision was made through the abdominal parietes, from the ensiform cartilage to pubis. There were some adhesions, which were divided; the cyst was dislodged and brought out through the wound, when the pedicle, connected with the right ovary, came into view. A double ligature was passed through the pedicle—the pedicle was divided between the cyst and the ligatures. Left ovary healthy. Some attempts to vomit during the application of the ligatures. Distinct symptoms of peritonitis soon came on, and the patient died on the 7th day. *Post-mortem.*—Lymph effused over abdominal parietes and viscera. Uterus large, tumid and of a dark colour, and a soft fungous tubercle, malignant in its structure, was found at its fundus. The weight of tumour thirty-two pounds.

Mr. Greenhow's case was read at the Medico-Chirurgical Society, and gave rise to a discussion, of which we just present the heads, in order to show the opinions of some of the principal members.

Mr. Lawrence expressed himself strongly opposed to the performance of so formidable an operation. He preferred occasional tapping, in order to relieve the bulk and weight of the collected fluid. He remembered a case in which mere tapping actually effected a cure. From considering every thing, he was decidedly of opinion that the operation for the removal of ovarian tumours was not a fit one to be entered into the catalogue of surgery. In reply, Mr. Cooper remarked, that the ovarian disease gave but little inconvenience, until the accumulation produced constipation or vomiting, but after paracentesis he noticed that they often became quite ill, and a burden to themselves and others. With respect to Mr. Greenhow's case, he thought the operation was not justified, as was evident from the appearance of the tumour. With respect to the relative effects of the major and minor operations, he preferred the minor.

Dr. Merriman said that, in Mr. Greenhow's case, the presence of leucorrhœa and menorrhagia indicated such disease, that no hope could be entertained from an operation. Mr. B. Phillips did not agree with Mr. Lawrence, that the magnitude of the operation was any reason against its taking rank among the other operations of surgery. What we wanted to know, before we could arrive at an accurate conclusion respecting it, was the actual result of the whole of the operations already performed. Mr. Lawrence said he had not condemned the operation completely, but, from what he knew respecting it, he would not recom-

mend its performance. He had reason to know that extirpation was not a full and permanent remedy—he preferred the minor operation. Mr. Davies had tapped a lady fifteen years ago—she was now 72, and had been tapped five or six times since the first. Mr. Lloyd related two cases in which tapping had been successful in effecting a cure. Dr. Copland was altogether averse to any operation, even tapping, in ovarian disease. He would rather trust to nature and change of climate and constitution.—(*Condensed from Lancet*, Jan. 20, 1844.)

The Opinions of Dr. William Hunter on the Removal of Ovarian Tumours.

In connexion with the sentiments of Lawrence, Cooper, &c. on the Extirpation of Ovarian Tumours, it may not be amiss to cite those of the illustrious William Hunter. For these we are indebted to Mr. Crompton, of Manchester, who has contributed them to the Medical Gazette.* We shall extract those which bear most pointedly upon the question which now occupies the attention of the profession. But here are the words of Dr. Hunter.

"I have had occasion to see a great number of encysted dropsies, many of them treated by physicians of the first rank, and yet have never seen one cured; nor have I ever known one case of that kind, where the cyst has been sensibly diminished in bulk by any other means than by the trocar. If I may form a judgment by what I have seen, both in the living and in the dead body, I should believe that the dropsy of the ovarium is an incurable disease; and that a patient will have the best chance of living longest under it, who does the least to get rid of it. The trocar is almost the only palliative. It has been proposed, indeed, by modern surgeons, deservedly of the first reputation, to attempt a radical cure by incision and suppuration, and by the excision of the cyst. I am of opinion that excision can hardly be attempted; and that incision and suppuration will be found by experience to be an operation that cannot be recommended, but under very particular circumstances."

When the cyst is single, and extended over the whole abdomen, it cannot be distinguished by the feel from a common ascites; till then it can hardly be said to resemble the ascites. When there are a number of cysts, we are generally sensible of the inequalities and the swelling, from first to last. In the dead body, upon examination we find they take origin from the ovarium, or adjacent parts at the ligamentum uteri latum. But when small, and when so large as to contain several quarts, they are sometimes detached or loose all round, except just at their origin; but more commonly they are found to have contracted partial and irregular adhesions to the neighbouring parts, seldom if ever to the floating loose turns of the bowels. When they are come near to their utmost extension, they sometimes adhere uniformly and universally to the parietes of the abdomen; but more generally, even in this case, the adhesion is partial and irregular. When there is only one coat, it generally, if not always, contains a thin water; where there are many, some of them more commonly contain a ropy fluid, in consistence like gall or thin honey,; and others a gelatinous substance. The thin water is usually clear, the ropy fluid of a dark brown colour, and the jelly sometimes more clear and transparent than the white of an egg: sometimes it is mixed with opaque white parts; sometimes it is of an amber colour; and at other times dark and brown. All this variety has been found in the same person. I can hardly say that I have ever found any part of a dropsical ovarium in a truly scirrhous state. What at first view might seem such, proved, upon cutting, to be a compact group of small bags; or a spongy substance filled with jelly. Generally, before the patient dies of such a dropsy, some degree both of leucophlegmasia and of ascites is brought on; so that when such bodies are opened, some water is found loose in the cavity of the belly; and sometimes the

* Feb. 2, 1844.

cyst is found to have burst, and to have discharged its contents into that cavity. Now if the disease be nearly what I have stated, must not the wound made in the belly, for the excision of the cyst or cysts, always be large enough to admit the surgeon's whole hand? Must it not be often a good deal larger; as when the tumour is larger, and composed of a number of bags filled with jelly? Would not such a wound be attended with a good deal of danger from itself? Would it not be very difficult to cut the peduncle or root of the tumour, with one hand only introduced? Would it not be impossible to do this, where the adhesions proved to be considerable? Would there not be a great danger of wounding the intestines? If any considerable branch of the spermatic artery should be opened, what could the surgeon do to stop the bleeding? If it be proposed, indeed, to make such a wound in the belly as will admit only two fingers or so, and then to tap the bag, and draw it out, so as to bring its root or peduncle close to the wound of the belly, that the surgeon may cut it without introducing his hand, surely, in a case otherwise so desperate, it might be admissible to do it, could we beforehand know that the circumstances would admit of such treatment."

Dr. Hunter, therefore, thought unfavourably of what then was a proposition—now a sort of stock operation.

Dr. Marshall Hall on a Means of Diagnosis in Ovarium Disease.

We have now given three fatal cases of Extirpation of an Ovarian Cyst. We have given too the opinions of the principal speakers at the Medico-Chirurgical Society. Dr. Marshall Hall has a suggestion to make, ingenious as all his suggestions are, and not unlikely to be serviceable in some instances.

"I would propose, then, before proceeding to any more serious operation, to make a very small puncture first, through the abdominal parietes, and to introduce through this puncture a silver probe, of the proper length, form, &c., and to pass it all round the tumour, to determine the question whether there be *adhesions*—whether the tumour be uniform? And, in the second place, to puncture the diseased mass itself, and introduce a minute trocar attached to a small bottle of India-rubber, of considerable thickness, and withdraw a portion of its *contents*."—*Lancet*, March 9, 1844.

SUCCESSFUL OPERATION FOR CONTRACTION OF THE MUSCLES OF THE FACE.

J. W., aged 12, first became affected with a contraction of the muscles of the face after a severe attack of measles. When the mouth is at rest, the left commissure of the lips is placed nearly under the corresponding nostril; the right commissure being carried outwards and upwards upon the cheek. In attempting to smile or speak, or simply open the mouth, the deformity becomes greater, the right commissure being carried farther outwards, and at the same time either upwards or downwards, according to the muscles of the side put in action, and raising concentric ridges upon the cheek. On the left side the cheek is flattened, and the patient is almost entirely without voluntary control over the muscles. On attempting to draw the mouth to the left side, some tremulous motion only is produced in the corner, while the muscles of the right side are thrown, by the effort, into strong contraction. It appeared to Professor Pancoast that the deformity was rather due to the spasmodic contraction of the muscles of the affected, than to paralysis of those of the tranquil side. At all events, he determined to divide the former.

"June 9, 1842. I performed the following operation in the case at the clinic of the Jefferson Medical College. The patient was seated in a chair. On introducing my finger into the mouth, and causing him to attempt a smile, I found

a roundish rigid hardening of the muscles in three different directions—that of the buccinator—that of the zygomatici—and that of the depressor anguli oris. The orbicularis seemed also at fault, as it sunk the corner of the mouth inwards. Two subcutaneous incisions with a long and very narrow bistoury, straight on the edge, were made to divide these muscles. The knife was entered on the side of the mucous membrane, for the purpose of preventing the slight cicatrix, which might follow the puncture, from being visible. For the first incision, the knife was entered just above and in front of the entrance of the parotid duct, and pushed cautiously along the cutaneous surface of the mucous membrane in a direction parallel with the alveolar processes of the upper jaw, and for the extent of about two inches; the edge of the blade was then turned in front, and all the parts between the mucous membrane and skin divided as it was withdrawn. The zygomatic muscles gave way with a snap, and the buccinator was cut through the greater part of its origin from the upper jaw bone. The upper lip was pushed outward with the thumb and finger, and the knife, turned forwards as upon a pivot, divided the orbicularis oris through to the epithelium of the lip, without increasing the size of the puncture at the place of its entry. Four muscles were thus divided at one incision, as well as a portion of the fibres of the levator muscles. Considerable hæmorrhage followed the withdrawal of the knife, though precaution had been taken to compress the facial artery. The blood filling up the line of the cut, gave an increased fullness to the cheek; the bleeding quickly stopped of itself, but little taking place externally.

"The knife was then introduced, in like manner, from the inner surface of the lower lip just within the commissure, and carried obliquely downwards towards the angle of the jaw, and made to divide, as it was withdrawn, all the parts between the skin and mucous membrane up to the covering of the lip, consisting of the lower edge of the buccinator, the hard and rounded depressor anguli oris, and the lower disk of the orbicularis—the movement of the point of the knife being obvious below the skin in its whole course as it was withdrawn. But little bleeding followed this incision. The mouth, as was apparent to all the spectators, became immediately straight; nearly all power of motion over the right corner of the mouth was lost, while the patient regained considerable control over the left. A compress was secured with a nodose bandage over the facial artery. With a small silver hook in the left commissure, attached to a piece of ribbon, the mouth was drawn as far as possible to the left side, for the purpose of widening the subcutaneous incisions made on the right side, and allowing them to fill up with a thick stratum of lymph, which, after the closure of the wound, is to insulate the divided portions of the muscles."

On the 12th, it was necessary to divide the middle portion of the buccinator. On July 1, we have the concluding report:—

"The mouth, when at rest, is perfectly straight. The muscles of the left side of the face have not regained much power, with the exception of the zygomatic, which act with considerable force. The muscles on the right side produce little more, when put in contraction, than their natural effect. His articulation is more distinct than before the operation; and the only obvious defect now existing, is that produced by the depressor labii inferioris."

We notice this case principally with the view of pointing out the imperfect evidence on which cures from division of muscles rest. Three weeks only elapse after the operation, and the case is related as a successful one. It must be perfectly obvious that no such conclusion can yet be drawn. Even as it stands, there are suspicious circumstances, and, perhaps, the result may not be so happy as is represented. In this country, the mania for dividing muscles has certainly subsided into a passive stage.

OPINIONS OF SIR BENJAMIN BRODIE ON DIFFERENT POINTS OF SURGICAL PRACTICE.

We need not dwell on the practical character and value of Sir Benjamin Brodie's observations. The approbation of the profession and the public has been expressed in too significant a manner to admit of the slightest misconception. But what, in our opinion, is their leading merit, is not the mere utility of this or that remark, but the spirit of observation from which it evidently springs, and the philosophical method of study which it inculcates. The worth of this is not limited to its immediate application, but has as wide a sphere of action and of usefulness, as the science of surgery itself.

To the student we would recommend, in the most earnest manner, the Lectures of Sir Benjamin Brodie. Simple, unaffected, and manly in style, direct in their bearing on the subject, undiluted with a single sentence which is not germane to the matter, they are models of composition in their way. They have not, indeed, the charm which surrounds the writings of Pott, nor the fire which burns in the pages of John Bell. But as specimens of scientific discourses they are, we think, superior to either.

We propose to bring together some of the peculiar opinions, or the more striking facts, which these Lectures contain. They need no defined order, but may be presented in detached bits without further connection or introduction than the name of their author affords.

1. *Chronic Inflammation of Schneiderian Membrane, simulating Nasal Polypus.*

A young person, frequently a child, is brought having dilated pupils, a fair complexion and thin skin, with some difficulty of breathing through the nostrils, and perhaps rather more secretion from them than usual. On looking into the nostrils the Schneiderian membrane appears very turgid, more vascular than ordinary, and on the outside there is a tumour, an excrescence, sometimes small, at other times pretty large. This may be mistaken for a polypus, and, indeed, the disease puzzled me when I first saw it. This appearance, however, is produced merely by the thickening of the mucous membrane of the nostril at the anterior extremity of the inferior turbinated bone. I do not believe that the mucous membrane there is really more thickened than it is anywhere else; but it is more apparent in that situation on account of the projection of the bone.

In some cases in which the mucous membrane has been sufficiently thickened to obstruct the respiration through the nostril, I have introduced a pair of probe-pointed scissors, slightly curved, and snipped off a portion of the projecting mucous membrane. There is no harm whatever in its excision; and where the nostril is much obstructed, the operation affords great relief. You may suppose this to be a very simple operation; and so it is, for it is done in an instant, but yet it requires some care in order that it may be done properly. In the dead body you might snip off a bit, and if you had not completed it by one incision you could make another. But in the living subject the mucous membrane is full of vessels, and the part must be snipped off at once; for the moment one division is made with the scissors, the hæmorrhage is so great that you cannot see a bit of the remaining part which requires to be divided. It is only every now and then that you find it necessary to have recourse to this operation.

Steel, injections of sulphate of zinc, and citrine ointment are serviceable.

2. *Abscess in the Tumour.*

I have seen some cases in which a small abscess has formed in the tumour that I have just described. Suppuration has taken place in the substance of the Schneiderian membrane just where it projects in front of the inferior turbinated bone, and the best plan to adopt is to cut off, with a pair of scissors, membrane

and abscess altogether. When an abscess forms in a pile, that is best relieved, not by laying open the abscess, but by snipping off the pile.

3. *The Fissured Tongue from Dyspepsia and from Mercury.*

"In dyspeptic persons the tongue is frequently rather swollen; it becomes cracked on the surface, and may remain so without harm for years. It may bear the appearance of fissures on the surface, and the papillæ may be enlarged. This dyspeptic tongue, existing in a slight degree, is very common. A similar appearance of this organ occurs in persons who have been much under the influence of mercury."

"I remember a patient who had thus suffered from the use of mercury, and for a long time afterwards his tongue was much enlarged. The longitudinal fissure was so deep that it looked as if the tongue were divided into two parts, and the patient consulted a medical practitioner who, not being acquainted with the disease, thought the tongue was going to drop into two pieces, and proposed to fasten it together by a ligature."

The appropriate remedies for dyspepsia, and those for mercurial cachexia are indicated.

4. *A peculiar Disease of the Tongue.*

"There is a disease of the tongue which I have seen every now and then, and which I am sure is very often mistaken for cancer, though it is of a different nature. It is a curable disease, although it looks like a malignant one in many respects. The first thing of which the patient complains is enlargement of the tongue, with some pain. On examination you find a tumour in one part of it, not very well defined, not with any distinct margin. It is a softish tumour, and increases in size; and perhaps another tumour appears in a different part of the tongue, and that increases also. There may be three or four of these soft elastic tumours, with no very defined margins, in various parts of the tongue. This is the first stage of the disease.

"In the second stage there is a small formation of matter in one of these tumours,—a little abscess, which breaks externally, discharging two or three drops of pus. When the abscess has burst it does not heal, but another forms in one of the other tumours. These abscesses may assume the form of ulcers, and the ulcer has a particular appearance. In the first instance it is a very narrow streak of ulceration, but on introducing a probe you find that the ulcer is the external orifice to a sort of fissure in the tongue. The probe passes in obliquely; the tongue is, as it were, undermined by the ulcer, a flap of the substance of the tongue being over it.

"The disease now becomes more painful, and at last these ulcers may spread externally. In some instances they occupy a very considerable portion of the surface of the tongue, but generally they burrow internally, and do not spread much towards the surface. This is a very distressing state of things, and a man may remain in this state for a long time. The glands of the neck do not become affected, nor does the general health suffer, except from the difficulty of swallowing food. This is one inconvenience experienced by the patient, and he also labours under a difficulty of articulation. The tongue, from its enlarged state, may become stiff, not sufficiently pliable for the purposes of speech, and the patient either speaks thick or lisps.

"In some instances the disease may be relieved by a course of sarsaparilla, with small doses of bichloride of mercury. A strong decoction of sarsaparilla, with from a quarter to half a grain of bichloride of mercury, may be taken in the course of the day. Of course, if there be anything wrong in the general health, you should endeavour to get that corrected, and attend especially to the state of the bowels and the secretion of the liver. If the secretions of the digestive organs be unhealthy, a dose of senna and salts may be given every other

morning, and blue pill every other night. When the patient is brought into this state, one remedy, as I have said, is sarsaparilla with bichloride of mercury, but, according to my experience, this is not the best remedy. The remedy best adapted for these cases is a solution of arsenic. Give the patient five minims three times daily, in a draught, gradually increasing the dose to ten minims. It should be taken in full doses, so that it may begin to produce some of its poisonous effects on the system. When it begins to act as a poison it will show itself in various ways. Sometimes there is a sense of heat, a burning pain in the rectum; sometimes griping, purging, and sickness, and nervous tremblings. A patient who is taking arsenic, especially in pretty large doses, ought to be very carefully watched. At first you may see him every two or three days, and then every day; and as soon as the arsenic begins to operate as a poison, leave it off. When this effect is produced the disease of the tongue generally gets well, but at any rate leave off the arsenic, and the poisoning will not go too far; it will do no harm. If, after a time, you find that the disease is relieved, but not entirely cured, you may try another course of arsenic. Perhaps it may take a considerable time to get the tongue quite well. Sarsaparilla, with the bichloride of mercury, may be given at one time; and at another, arsenic. You cannot give either of these remedies for ever, and indeed the arsenic can only be given for a very limited period; but it is astonishing what bad tongues of this description I have seen get well under these modes of treatment, especially under the use of arsenic."

5. *The Seton best for Ranula.*

"I have punctured the bag, and then touched the edge with caustic potassa to prevent its healing. The patient has gone on very well so long as it did not heal, but as soon as I have left off applying the caustic the orifice has closed. I have introduced a tenaculum into the bag of the ranula, and cut away a piece sufficiently large to admit the finger; the patient has then continued well for a longer time, because the part takes longer to heal, but contraction takes place, and the patient is bad again. I have run a seton through, and the patient has then gone on well for a considerable time. I have introduced a gold or silver ring, and kept that in as a seton. If the seton be kept in a considerable time it seems to effect a permanent cure, but even that fails, and you have to perform the operation two or three times. I know of nothing better than the use of a seton, and I believe that it is better made of metallic substance than of silk. It does not so soon ulcerate its way out, and if it remain in for a long time the edges of the orifice through which the seton is introduced may become covered with mucous membrane. If you introduce a silk or India-rubber seton in the back of the neck, after a great length of time a sort of skin forms on the inner surface of the canal; there is a discharge of matter; and when you take away the seton, the part in which it lay remains pervious. So if you keep a seton in a ranula for a very long time the opening may remain pervious. The advantage of a metallic over a silk seton is, that it does not ulcerate its way out so soon, does not get putrid in the mouth, and therefore may be kept in for a longer time."

6. *The Sphincter Muscle of the Anus will Relax so as to admit the Hand.**

In a case of accidental intrusion of a piece of cane into the rectum, which occurred to Mr. Thomas, he introduced his finger into the gut, but could feel nothing. The sphincter muscle relaxing, he got in two fingers, and, ultimately the whole hand, when he was able to find and abstract the piece of cane. On this Sir B. Brodie remarks:—

"There is, in this case, a circumstance of great interest, and one that I believe was first observed by Mr. Thomas, namely, that the sphincter muscle gradually

---

* Lancet, Jan. 13, 1844.

became relaxed under the pressure of the hand, so as to admit not only one finger, but two, and ultimately the whole hand. I have observed the same thing in several cases in which I have had occasion to make an examination, and the knowledge of this fact is very useful indeed on certain occasions which occur not only in hospital, but not unfrequently in private practice."

"Those who live luxuriant and indolent lives are liable to have their bowels become very torpid, and you may be assured that there is no harm in their constantly attending to their bowels. I have known people belonging to the affluent classes who have been in the habit of taking medicine almost every day. I know one hearty old gentleman, eighty-six years of age, who can walk round the Regent's-park, who has taken an aloetic pill every night for three-score years. I knew another gentleman, who died at ninety-two, who took either an aloetic or a rhubarb pill for the same length of time, and I could give many other examples. But there are others who do not attend to their bowels; scybalæ form in the colon, they pass on to the rectum, but they are not easily discharged per anum. The softer fæces pass over the scybalæ, other scybalæ descend into the rectum, and the accumulation goes on until at last the rectum becomes completely filled up with a great mass of hardened fæces, as large as the fist, and even larger, so that half a pound or perhaps a pound weight may be collected there. The patient now suffers exceedingly, and he—or perhaps I ought to say she, for it is more common in women than in men—has a desire to go to the water-closet. She goes, great pain is produced, but nothing comes away, the bowels being stopped up with these hardened fæces. The nature of the complaint may be ascertained by introducing the finger into the rectum; you there feel the hard mass of fæces. How is that to be got rid of? By injection? An injection will not act on this large mass. You must first dilate the sphincter muscle by introducing the fingers, and then with the handle of one or two pretty large spoons the whole mass may be extracted. A good nurse can accomplish it very well, if you tell her how. Let her take a couple of desert-spoons and bring away a little and a little more, and when the rectum is nearly empty, warm water injected two or three times will remove the remainder. Until I was aware how much the sphincter muscle might be dilated I found it difficult to manage these cases. I used to try to accomplish it by introducing a narrow spoon into the rectum and bringing away a little at a time, but that was a very tedious process."

7. *Hysterical Stones in the Bladder.*

"Mr. Childer long ago—for he has now been dead twenty years—brought me a wafer-box full of what were said to be calculi passed from a young lady's bladder. On looking at them I said, 'Calculi! they are bits of brick-bat and flint, and nothing else.' He replied, 'It is true, but there is a singular history belonging to them.' He then told me this story:—A young lady, the daughter of a gentleman of fortune, all at once began to bleed, and, as she said, passed these calculi from the bladder. Her father and mother went to stay at the house of a country gentleman, and there she was taken very ill indeed at the water-closet, discharged a great quantity of blood, and produced an immense quantity of calculi, which she said came from the bladder; but they were examined very carefully, and found to be just what I have stated. I might mention many circumstances of the same kind."

8. *Hysterical Needles in the Body.*

"The following case occurred in my practice:—A lady of hysterical habit was unfortunately married to a gentleman who became insane. Once or twice during a paroxysm he very nearly murdered her. What with anxiety about him, and apprehension about herself, her nervous system, which was bad enough to commence with, became much shaken. He died, but she remained in a frightful state—very weak in health, with constant nervous pain on one side, and

subject to what are called fainting fits; in fact, a sort of hysterical catalepsy,—that kind of fit which is produced by animal magnetism working on the imagination of hysterical women, in which the patient appears to be unconscious, but is not so in reality. One day she had with her a paper of needles, containing about fifty, fresh from the place where they were bought. She was by herself, she rang the bell in haste for the servant, and said that she had had one of her fits, and that the needles had run into her leg. This seemed a very odd story. Only eight needles out of the fifty were found left in the paper. It was thought that they had got into the footstool. That was unpicked, but nothing was found in it, except a few broken pins. They looked at her leg, and seeing something they did not understand, they sent for a surgeon in the neighbourhood, who found one or two needles pricking under the skin; he opened the skin with a lancet and took them out. In the course of two or three days other needles were discovered, he tried to take them out, but they slipped away, and I was sent for. With some trouble I removed them, and on a subsequent occasion I took out more; altogether we removed about twenty-eight needles from her leg—they were in one leg only. The leg became swollen and œdematous; and, having been in weak health before, she now became still weaker, and sank and died apparently from the mere want of nervous energy. On examining the leg I found several needles still left in it; they were not all taken out, but it would appear that there were just enough to account for those missing."

Sir Benjamin naturally concludes that the poor woman herself introduced the needles into her leg.

9. *How to extract Needles from the Body.*

"It may appear a very simple thing to extract needles that are sunk in a woman's leg, but it is not so simple in practice; for every motion of the limb makes the needles shift their situation; and if, in trying to remove them, you make any pressure upon them before you seize them with the forceps, they slip away. No attempt should be made to take needles out of the human body until they are close to the surface, and when you can with a light hand feel one end of them under the skin. You may then venture to puncture the skin with a lancet, and take care to pass, if possible, by the side of the needle, so as not to make pressure upon it. When you see the black point of the needle, take hold of it with forceps and extract it. With a light hand you may take out a needle; but if a surgeon be rough the needle slips away, and extraction is impossible."

What we have found answer best is this:—ascertain the site and probable direction of the needle—then make the incision not directly over it, but rather to one side, and *cut across it.* The knife readily hits it in that way, when an incision parallel to the needle may fail. The needle being felt by the knife, a pair of fine forceps is introduced, the needle seized *below* its presenting end, and so brought out.

10. *Perform Tracheotomy, when there is a Foreign Body in the Trachea.*

"If you are satisfied that the foreign body is in the trachea, I believe that the proper course to pursue is not to trust to nature; she may manage it, but you are not certain of it, and in a great number of cases where it is left to nature the patient dies. Make an opening in the trachea, and I believe that it is best to make it low down. You may proceed here as leisurely as you please, for the patient is not in danger of instant suffocation. Take up every vessel as you proceed, and separate the parts as much as you can with a director, instead of cutting them, so as to avoid hæmorrhage. If you open the trachea when bleeding is going on, every time the patient inspires blood is drawn into the trachea, and the patient may be suffocated by the surgeon opening the trachea too hastily, and allowing it to become filled with blood. I know a case in which a surgeon performed tracheotomy, and the patient died almost directly. On examining the

body, as I am informed, the trachea and bronchi were full of blood. Make the opening, then, as leisurely as you please; separate the parts by a blunt instrument rather than a knife; divide three or four rings of the trachea longitudinally, but there is no occasion to remove any portion of the trachea. What will now occur? When you have divided the trachea, if it be a light and moveable body, such as a cherry or tamarind-stone, as soon as you have made the opening, if you hold back the edges, cough comes on, the foreign body is thrown up, and escapes by the artificial opening; or even if it do not escape there, the danger of suffocation, in consequence of its sticking in the glottis, is prevented. But if the foreign body be a bone or any rough substance that is stuck in the trachea, and not moveable, then you may introduce the forceps and remove it; and I can conceive of cases in which it is right to take a foreign body from the bronchus. I advise you, however, never to attempt the latter if you can effect the object in any other way. The introduction of forceps into the bronchus will occasion violent coughing, great irritation, and it is a frightful thing to introduce these instruments into the bronchus when the patient is agitated by a convulsive cough. Only conceive of the important organs in the neighbourhood."

11. *Remove the whole of an Organ affected with Malignant Disease.*[*]

"If there be a scirrhous tumour imbedded in the gland of the breast, and you remove the tumour, together with the part of the breast in which it is situated, leaving the remainder of the breast, according to my experience the disease is certain to return; and this corresponds to a rule which I think applies to all cases of malignant disease—that is, that you have no security against the return of the disease unless you remove the whole of the organ in which it is seated. For instance, if there be fungus hæmatodes of the bone of the leg, the patient may have some chance if you amputate the thigh above the knee, but none if you cut through the tibia below the knee. If there be malignant disease of the femur, you have very little chance at all, unless you think it expedient to take out the thigh-bone at the hip-joint. I say, therefore, in cases of scirrhous tumour of the breast, if you perform the operation at all, where the tumour is imbedded in the breast, you must remove the whole of the organ. You may imagine that this is a thing very easy to be done, but you will not find it so in reality, for in amputating the breast, in a thin person, you will be very apt, if you are not extremely careful, to leave a small slice of the gland of the breast adhering to the skin, and I have no doubt that this small portion may, in some cases, form the nidus of future disease. The colour of the gland of the breast varies little from that of the surrounding adeps, the hæmorrhage causes confusion, and you must be careful in the dissection to keep the knife near the skin, not near the breast. But, in addition to this, in every case when you have taken out the tumour, you should examine the surface, and see whether every part you have removed is covered by healthy adeps. If it be not, look on the middle of the flap of the skin, and see whether any small portion of the breast has been allowed to remain there."

---

* Lancet, Feb. 3, 1844.

Miscellanies.

A LECTURE ON THE IMPROVEMENT OF MEDICAL EDUCATION IN THE UNITED STATES. By M. PAINE, M.D. &c. &c.

——————————— amphora cœpit
Institui—currente rotâ, cur urceus exit?—(Horace.)

The perusal of Dr. M. Paine's Lecture reminded us very forcibly of some passages of our old friend Horace; of the one, for instance, prefixed to this our notice, as well as of that wherein the poet describes the ludicrous effect which would be produced by the exhibition of a monster with a human head and a fish's tail. The lecture commences with a castigation of the chemical physiologists, for their presuming to encroach on the domain of physiology and pathology, and after raising our hopes, that the Doctor was about to enlighten us by grappling with and crushing the impudent pretensions and monstrous theories of Liebig, it abruptly breaks off into an entirely different subject, (an interesting one, no doubt), viz. that of the "Improvement of Medical Education," by which, however, we very soon found, to our utter amazement, the learned lecturer means neither more nor less than lowering the standard of professional "requirement," and that for no other reason, as he states in another part of the lecture, than because cheapness of education and a corresponding adaptation of time are found indispensable to the general condition of (American) society. Our respect for Dr. Paine induces us to take a regular, though necessarily a very cursory view of the more prominent parts of this lecture. Though we are little disposed to admit the validity of all Liebig's doctrines, or their adequacy to account for the various phenomena of disease, or to effect its removal, still our adhesion to the great principle of vitalism, shall never carry us so far as to make us utterly discard and repudiate the many valuable suggestions contained in "Chemistry applied to Physiology and Pathology."

We utterly deny that this work of Liebig's, recommended though it be, by its "insinuating simplicity," attempts to "promise an exemption from intellectual toil—to divest pathology and therapeutics, as well as physiology, of every intelligible principle—or to overthrow every other department in the Science." We suspect very strongly that the charge of "insinuating simplicity" had its real origin in the circumstance of Liebig's founding his theories, whether true or false, on plain matters of fact, and every-day observation, a mode of proceeding by no means congenial to the taste of those pathologists who have been all their lives mystifying themselves in the murky clouds of sublimated abstractions and fanciful hypotheses whereby to account for the various phenomena of health and disease.

With respect to Dr. Paine's learned coadjutor in the Quixotic attempt to demolish Liebig's theories, whose tirade, here referred to by Dr. Paine, with so much exultation, appeared, if we mistake not, in the North American Review, for October, 1842, we shall only say, that its vulgar verbosity, unbecoming personalities, and rancorous hatred of everything British, render it perfectly safe from our notice *non tali auxilio, nec defensoribus istis tempus eget.* Our confidence in the solidity of the foundations on which modern pathology is raised, is too great to allow us for a moment to apprehend that "the interference of the laboratory can ever shake the foundation or debase the science of medicine." At the same time we feel fully convinced that both physiology and pathology have derived, and will continue to derive, most valuable aids from the investiga-

tions and researches of modern chemistry. Having said thus much on the subject of Liebig's theories, we shall proceed to our notice of the other portion of the lecture. Dr. Paine says, "that from the necessity for medical practitioners in all assemblages of men, it is obvious, that provision should be made for the diffusion of medical knowledge, as far commensurate with the vastness and difficulties of the science, as the circumstance of each society will admit; and further, that there should be no limits to those requirements which humanity enjoins, and which education supplies, unless those imposed by the common exigencies of society." With this, as an abstract principle, we have no disposition to quarrel just now, at the same time that we cannot help expressing our horror of its practical application.

One of the main arguments advanced by Dr. Paine for requiring a low standard of medical education is, that this would tend to prevent the diffusion of quackery. Now, we beg leave to ask what advantages would result to society from sending out a set of imperfectly-educated medical practitioners, for the purpose, forsooth, of preventing quacks from practising? Where is the difference between an ill-educated medical stripling furnished, it may be, with a few general principles, derived from lectures and from books, and a sheer quack, who has, at all events, scraped together a certain amount of empirical knowledge? Raise, says Dr. Paine, beyond a certain limited poise, our standard of absolute acquirements, and, I repeat it, we shall turn from our medical schools most of their aspirants into more humble channels, or into the walks of empiricism. The exigencies of American physicians demand an early application to the business of life. Now the plain English of all this is, require as small an amount of qualification as possible from the young medical aspirant—grant him a license to practise without worrying the poor fellow's brain, or taxing his pocket too severely,—or the consequence will be—what? why, a set of men who never attended a single medical lecture—whose knowledge of disease is purely empirical, will step in and seize the practice—and a good job we think it would be for the public. "If we would cultivate the field of medicine," says the Dr. "we must look for an early harvest, or, my word for it, it will be soon over-run with weeds." We shall merely say, in reply to this, that if unqualified practitioners are let loose to cultivate the field of medicine, this field will be soon over-run, not "with weeds," but with the bodies of their unfortunate patients. Oh! but then, says Dr. Paine, when the harvest begins, then is the time for the most salutary stimulus of ambition;—that is, in other words, grant these poor fellows the license to practise physic—to reap the harvest, (and without sowing too,) to treat disease (without understanding a tittle about it)—and then see what industrious students, what successful practitioners, they will become after a while—on the principle no doubt—*possunt quia posse videntur*. Surely, the uneducated quack can do all this, as well as the licensed practitioner, and so there is scarcely a difference—*mutato nomine*, &c.

One or two words more, and we have done. Dr. Paine says, "it is no small part of our surrounding advantages, which go to the formation of character, of judgment, and practical habits, at the very outset of professional life, that our pecuniary wants turn us, almost from the cradle to thoughtful habits of economy, and into the ways of industry. We thus early become familiar with man in all his aspects;—and with characters formed for decision, by participating in the events of society, and early accustomed to mark the varieties of the moral constitution, we are better qualified than they, who spring from the nursery of wealth, to appreciate the various conditions of the physical, and to carry our habits of business into the chamber of the sick." This is a truly graphic description of the great blessings of poverty. What a school for pathological and therapeutical attainments our American friends possess! What a splendid preparation for forming decision in medical treatment is afforded by the fact of the American medical student being put to his shifts, from his very cradle, in order to keep body and

soul together! When a man is on the brink of starvation from want of means to procure a meal, he certainly needs decision. We cannot, however, for the life of us, suppose that it is the same kind of decision as that required in treating a difficult case of disease. To form a decision in the former case, mere instinct will almost suffice—but to form a decision in the latter case, considerable mental cultivation—experience acquired by well-directed attention to the various branches of medical science—a close and attentive observation of disease in hospital practice under the eye of an experienced and well-educated practitioner—these, and all these, are indispensably necessary, and for these the poverty of poor Job himself, can afford no adequate substitute. Poverty may give cunning—shrewdness—and habits of economising pecuniary resources—it never can impart tact in the diagnosis, prognosis, or treatment of disease.

MEDICAL SCHOOLS IN ENGLAND AND AMERICA.

For the last two or three years the English, and, more particularly the London Schools of Medicine, have been declining in point of numbers. Several causes have operated in occasioning their falling off in the metropolitan establishments, but probably the chief one has been the recognition of Provincial Schools, and their consequent extension.

Whether this will ultimately tell for the benefit of medical education in Great Britain, we will not stop to inquire, although we are disposed to doubt it. When classes fail to remunerate lecturers, they will probably not receive that amount of attention and zeal inspired by the expectation of a liberal reward, nor will men exclusively engaged in practice devote their time and talents to an unprofitable drudgery. The consequence will be, that the student will lose the benefits derived from the experience of his instructor, benefits which it is impossible to over-estimate. If, indeed, the Provincial Schools were generally thriving, one would be disposed to overlook the damage done to the London ones, and, on the Benthamite principle, of the greatest good to the greatest number, strike the balance in favour of the change. But we are mistaken if the Provincial Schools *are* thriving. They abstract enough from the London Schools to injure *them*, but not enough, materially to benefit themselves.

It would seem to be otherwise in America. In the Medical Examiner,* we find a statement, which shows that the Schools throughout the United States are highly prosperous this year.

"Information from all parts of the country shows an unusually large attendance of Students at the various Medical Colleges, the present Winter. This may be accounted for by the embarrassed condition of agriculture and commerce during the last few years, which has probably induced more than the usual proportion of young men to look to the learned professions; and partly, perhaps, by the fact that many have been kept back by the general pecuniary distress which has prevailed, who now find means to avail themselves of the advantages of public lectures. At the two Schools in Philadelphia, the number of Students is greater than at any former season. The University of Pennsylvania has more than her average class, and the number at the Jefferson Medical College exceeds that of last year, by nearly one hundred."

In this country, one cause which has been assigned, and apparently with reason, for the low state of the classes, has been the depression of the manufacturers and agriculturists. If they can barely manage to get on, they are not in a condition to give their sons an expensive education. Add to this, the diffi-

---

* Jan. 13, 1844.

culty of providing for them afterwards, in consequence of the crowded state of the profession, and part, at all events, of the present state of things is accounted for. In America it seems to be just the reverse. The embarrassments of the farming and trading interests are assigned as causes of the prosperity of the schools. This would seem to show that medical education is cheap, and medical remuneration in the New Country sufficient to obtain for the neophyte a living.

We cannot but remark with satisfaction the fortunate condition of the University of *Pennsylvania*. The "drab-coloured men" may well make doctors of their sons, seeing that they can pay the matriculation fee with other people's money. We only trust that that very fee is not *repudiated*, and that in that very respectable State, there is in their dealings with each other, honour among thieves.

Loss of the Eye-Brows and Eye-lashes from (supposed) Parasitic Animalcules.

Without going into the details of his discovery (if discovery it be), we may observe that Mr. G. Robinson procured from a lady, who had lost her eyebrows and eyelashes, an insect and some ova, which he believes were the cause of the loss in question.

The complaint was first observed about ten years previously, viz. in the autumn of 1832 or 1833, when the eyebrows gradually became so much detached from their connection with the skin that, each time the face was washed, some half-dozen adhered to the towel. An intense itching of the skin covered by the eyebrows was then also, for the first time, remarked. This sensation became almost intolerable on entering a warm apartment, or on applying to the part any warm or stimulating substance. This irritability of the skin, doubtless occasionally aggravated by instinctive attempts to relieve it by friction, caused the integuments of the eyebrows constantly to assume a fiery red colour. Various applications were ineffectually employed, and, at length, after enduring the annoyance of the complaint during a period of four years, and being tormented during the whole of that time by numberless local applications, the chief effect of which was a momentary increase in the irritability of the skin, the morbid sensation and the loss of hair gradually ceased, and have never since returned.

Supposing insects to be the cause of her disorder, she preserved all the scurf, &c. from the affected part, and gave it to Mr. Robinson for examination. This was in 1842.

"On examining the whole of these particles under the microscope, I found, as might be expected, the greater part to consist of minute portions of epidermis, the scales of which were matted together, and slightly stained by a bloody serum. But with these there were also distinctly visible two bodies, which, from their shape, and from the firmness with which they preserved it under pressure, were evidently the ova of some small insect. In one of them the process of development had already commenced; for on it were seen six minute protuberances, the relative position of which indicated them as rudimentary legs.

"The larger and darker object, though slightly mutilated in consequence of the great length of time during which it had been preserved, was nevertheless sufficiently perfect to enable its nature to be satisfactorily ascertained; and it presented all the characteristics of a fully-developed insect. Its body, oval in form, was much wider posteriorly than anteriorly; the legs, six in number, were chiefly remarkable for being long, flexible, and tapering. It should be remarked that this was the only perceptible insect that was ever obtained from the eyebrows; though the minute oval bodies were not unfrequently met with."

He was unable to obtain any accurate information on the nature of the insect,

when he accidentally discovered the same on the body of the common house-fly. He has since found flies to be extensively infested with them. He believes that the complaint is occasioned by them, and suggests that the best preventive measure, in addition to general cleanliness, would be afforded by regularly brushing the eyebrows, night and morning, during the summer months. For the full-grown insect is sufficiently large to be removed by a brush; and if any had lodged there during the preceding interval, they might in this manner, be swept away before depositing their ova in the skin. And that the fully-developed insects can be thus displaced is rendered probable by the fact, that during the four years the complaint existed in the case here detailed, only one full-grown specimen was met with.

As to the treatment, he leaves that open, contenting himself with stating that it is not very easy, and finishing with two questions :—

1. "To what extent are the parasitical insects affecting the exterior of the human body, that of scabies for example, identical with, and derived from, those infesting the bodies of certain of the lower animals?

"And secondly, are not several, if not all the forms of prurituscomplaints of the incurability of which I have more than once observed, in the pages of this and other medical journals—occasioned by the lodgment of some minute parasitical insects in the skin, and not by mere inanimate dirt?"

Very possibly, but it must be owned that Mr. Robinson has not quite proved that the insects were the *cause* of the disorder, and not accidental complications of it.

MEDICAL REMUNERATION IN EMIGRANT VESSELS.

The profession is put to hard shifts. Its numbers have cut down, and are still continuing to cut down, the remuneration of individuals to starvation point. We all of us recollect the advertisement that appeared a little while ago, for the *place* of medical attendant on an invalid, there being no objection to undertake, at the same time, the duties of a valet. Such a gentleman, should he obtain the object of his ambition, would be ten times better off than the surgeon of an Union, or, as it appears, of an emigrant-ship. Mr. Churchill communicates to the *Lancet* from the Colonial Magazine, a calculation of the pay and profits of the latter hazardous employment. Here it is :—

200 emigrants (and that, if any thing, exceeds the average number, although some few vessels have taken 300 and upwards) at 10s. 6d.		£105
Expenses in harbour for six weeks, (and where there are ineligible emigrants full that time will be expended in investigating whether the surgeon was ignorant of their being so on embarking), in correspondence, &c.; and on average of 2*l.* per week all who have visited the colony can attest will not be more, in the towns, than sufficient to supply actual necessaries	£12	
Additional outfit for the voyages, out and home, to the apparel that may be considered requisite if otherwise employed, at but the small sum of	20	
And the homeward passage money, to do duty as surgeon, at the average, (which, if any thing, is under the mark) of 40*l.*; and saying such is obtainable in the period of six weeks, what is the balance of the bounty, after the hazard and anxiety attending such an undertaking?	40	72
Balance		£33!

Not nearly so good as a man-servant's wages in a decent family.—*Lancet*, Feb. 24, 1844.

Leeches good Weather-Gauges.

"It was interesting to notice the leeches which I brought with me from Sydney—their movements in the bottle always denoting a change of temperature and weather; they always crawled to the top of the bottle on the approach of mild and agreeable weather; but were as sure to drop down and lie meshed together in an inactive and dormant state at the approach, and during the continuance of stormy and cold weather. They showed indications of a change from eighteen to twenty-four hours before we could ourselves anticipate any. I found a little sugar added to the water a great improvement. The water need only be changed once a fortnight in cold regions, but oftener in warm or tropical climates, varying the quantity of water to the number and previous applications of your leeches: a little fine sand is very desirable, and seems to be liked by the leeches, and with it they are less apt to prey upon each other."

So writes Dr. Thompson, who had charge of a convict-ship.—*Medical Gazette*. Jan. 26, 1844.

Apothecaries' Diploma in Paris.

If we may trust the *Lancet*, the Diploma of Apothecaries's Hall is held cheap in Paris. We read that:—

"A Mr. Edmonds, practising in Paris, was lately summoned before the police court of the department, for exercising medicine in France without having received a license from one of the faculties of medicine in that kingdom. The authority to practise possessed and laid before the court by Mr. Edmonds, was the certificate of the Master, Wardens, and Worshipful Society of Apothecaries. The president remarked that 'this diploma seemed to give authority to practise pharmacy only, and not medicine;' to which the practitioner replied, by urging that 'doctors, so called, in England, were required only in consultation, while apothecaries, otherwise surgeons—in fact, 'general practitioners'—were the medical attendants of the great mass of the population, furnishing medicines, and answering in some degree to the French *officiers de santé*, and that it was by virtue of the very kind of document which he produced that the general practitioners exercised their functions.' But this sage explanation failed to make clear to the president by what reason the license of a company which he considered was trading in drugs should give the right to meddle with life and limb, and Mr. Edmonds was fined five shillings and costs. No account is given, however, of his having attended medically any but his own countrymen residing in France."—*Lancet*, Sept. 30, 1843.

It certainly does seem hard that the English abroad may not be physick'd after their own fashion. If a German, in London, chooses to live or die by hydropathy, or Hahnemannism, or any other mysticism of his country, nobody says nay. The Legislature acts on the principle:—

"What's that to me, I let's em."

And if a Frenchman in England chooses to be glyster'd when we think he should be blistered, he is still permitted, nemine obstante, to take his lavement or his demi-lavement undisturbed. Surely, then, it is particularly hard upon John Bull, to deprive him of his apothecary, and force him to take to a physician. Non tali auxilio, &c. say we.

SIMPSON'S NEW INSTRUMENT FOR CRUSHING CALCULI IN THE BLADDER. Shown at the Royal Medico-Chirurgical Society, on Tuesday, March 12th, 1844.

Mr. Simpson, the ingenious surgical instrument maker, in the Strand, has addressed this letter to us, and shown us the instrument referred to: it seems to us likely to be very serviceable in the cases for which it has been constructed.

Having been applied to a few weeks back in a case where the stone was supposed to be too large to extract without first breaking it, and as the instruments that have been hitherto made, have proved useless, in consequence of the difficulty, or rather impossibility of opening the blades of the Forceps after their introduction into the bladder, so as to grasp and crush the stone, partly from the great thickness of the blades, and partly from their being fixed together, I have constructed the instrument described in the following lines, from which I consider it will be obvious, that as the blades are introduced separately, and the stone may be comparatively easily crushed, the important and so long desired object is at length attained, namely, of being enabled to break up a large stone, and extract it by fragments, without greater danger than that usually attending the ordinary operation of lithotomy.

This instrument, which is for the purpose of crushing calculi that are found to be too large to extract by the ordinary operation of lithotomy, consists of two strong, curved, flattish blades, rather more than three inches in length, which, together with the handles, makes the whole length of the instrument about fourteen inches. The blades are introduced into the bladder separately, so as to get round a large stone more easily. After the stone is seized between the blades, they are locked or connected together by means of a button joint, something similar to that of Rigby's Midwifery Forceps. They then resemble a pair of very strong, large-sized Lithotomy Forceps. After the blades are locked together, a flattish bar with a small screw cut on the edges, is fixed by means of a screw to one side of the Forceps, and passed through an opening made for it on the other. On this screw and outside the handles of the Forceps, a washer is first placed, and then the handle with the female screw is put on the bar, and by turning it on the screw bar, the handles and blades are gradually closed together. Should the stone not be very hard, this power may be sufficient to crush it, but if not, a slide fits into an opening in the screw bar that serves to close the blades. This slide fixes by means of a screw, in the centre, according to the width the blades may be opened, and a drill is passed through the hole in the slide, (in which a screw is cut for the purpose), and also through a swivel at the lower end of the Forceps, almost under the joint. A blunt Gorget may be passed into the bladder to guide the drill, and prevent its touching any part of the wound. The handle of the drill is then turned round and round, till it arrives at a stop placed on the drill to prevent its passing beyond the ends of the blades of the Forceps, and injuring the bladder, thus boring away the centre of the stone, and consequently considerably weakening it. The blades may then be closed by turning the handle on the screw bar, and thus crush the stone to pieces. Should the first hole not weaken the stone sufficiently, the Forceps can be opened, and the stone loosed from their grasp, and by moving the stone, and seizing it in a different position, bore another hole, but the probability is, that in most cases, the one hole would be found quite sufficient. The stone having been broken into small pieces, they can then be extracted by the usual Forceps or Scoop in the ordinary way. The length of the incision in the bladder required to introduce and use these Forceps, is not more than that usually made for the ordinary operation in the average of lithotomy cases.

There is also another pair of Forceps of about the same length, but with straight blades, and made much stronger, to be used in the same manner as those already described, but so as to enable the operator to crush the stone, without having recourse to the drill at all.

DEATH FROM HYDROPATHIC TREATMENT.

It has always seemed to us that ingurgitating the quantity of water which hydropathic quacks prescribe and hydropathic blockheads swallow, must tend to excite the kidneys overmuch, if not to produce disease in them. The following case is in point. We are not sanguine enough to suppose that it will go far towards curing the public of its mania for hydropathy. That is founded on too ingrained a love of quackery and of the marvellous, on too essential a constituent of the human mind—credulity—to be likely to be removed by many such cases as the following:

Mr. C. aged 52, a druggist, in Nottingham, having only slight head-ache, was induced to take to hydropathy. Previously to the commencement of this Mr. C. had been accustomed to take one glass of ale at dinner and one at supper, with an occasional glass of wine once or twice a week, but was a man of great regularity, very domestic and of spare frame. During the last days of August he commenced the cold water plan of treatment (discontinuing all fermented drinks,) by swallowing, during the day, from seven to eight pints of cold water, sponging night and morning, and taking a considerable amount of exercise. This system was continued until the commencement of December, when Mr. C. began to find himself becoming thinner and weaker; that the quantity of urine passed was disproportionately great to even the large quantity of water taken; that the tongue became red and dry, the thirst excessive, attended with a dry state of skin. From this time it is impossible to ascertain the quantity of water drunk, as Mr. C.'s thirst induced him to take it in greater quantities and drink more frequently than he had previously done.

This state of affairs continued until Thursday, the 21st of December, when he consulted Mr. Hawkesley, who found him with these symptoms:—Exhaustion very great; much emaciation; pulse small, feeble, and fluttering, beating seventy-two in the minute; skin cold and dry; the thirst and appetite very great; lower extremities cold; urine in great quantity, he having passed for some time from five to six quarts during the twenty-four hours, limpid, insipid to the taste, reaction on test-paper acid, specific gravity 1.025. Notwithstanding the frequent exhibition of stimulants, these symptoms continued with little or no improvement until the Wednesday following, when the stomach became very irritable, and vomiting commenced, solids as well as liquids being rejected. Dr. Hutchinson now visited him. An opiate was prescribed; effervescing medicine, with hydrocyanic acid, and the tincture of sesquichloride of iron, to be taken as frequently as the state of the stomach would permit; beef-tea, brandy, with soda-water, and small portions of solid food. Mr. C. passed a good night and appeared better during the next day; but towards the evening the vomiting returned with increased frequency, and continued during the greater part of the night, until completely relieved by the frequent administration of one drop of creosote. Nevertheless, the exhaustion increased although stimuli were used very freely, both internally and externally; these had the effect of rousing him for a brief period, but every effort to rally him for any continued time proved unsuccessful; he gradually sank, and died at half-past one o'clock, p. m. on Friday.

The principal appearances disclosed on dissection were œdematous lungs—an anæmiated condition of the viscera—softening of the intestinal mucous membrane—deep-coloured softened kidneys, with small bloody points on section.*

No reasonable man, possessed of very moderate medical information, can doubt that hydropathy was the cause of death in this instance. The hydropathists, of course, ready, like all impostors, to swear black is white, have the impudence to lay the patient's death on the hydrocyanic acid, &c. taken to allay vomiting. The

* *Lancet*, Jan. 13, 1844.

old story. When Morrison purged people to death with his pills, he protested that they died because they didn't take enough ; and so it is with the water doctors. They drench their victims into diabetes or diarrhœa, and when they sink, it is either because they did not drink sufficient, or because what they did drink was drunk unskilfully. As if there was any skill or judgment in telling men to swill cold water all day long, and macerate themselves in it, as if they were to be made an infusion of.

By the way, the case of the late Sir Francis Burdett is another precious specimen of "the skill and judgment" of hydropathic practitioners. A man subject to gout, of an advanced age, is made to sit in cold water, imbibe enormous quantities of it, and totally change all his habits of life. What would any rational creature expect ? Just what happened—congestion of some internal organ and the worst consequences. We were told about the time that Sir Francis began his hydropathic practices, of what the poor man was about. We predicted to our informant that he would live about a month, if he persisted in his folly. He died at the expiration of three weeks.

We are not such fools as to argue this matter with the public, nor such children as to be angry with the said public about it. People have, we suppose, a right to quack themselves if they choose. And if they *will* believe every knave who professes himself possessed of a grand secret for curing diseases, there is no remedy for it but their own experience of his roguery and their simplicity. As for putting down credulity by Act of Parliament, the thing is utterly preposterous. The law-makers themselves are the weakest dupes of any.

BENZOIN WATER.

The sparing solubility of the salts of lithic acid is well known to be the proximate cause of a large proportion of calculous deposits.

It has been shown that when benzoic acid, or one of its alcaline salts, is introduced into the stomach, the lithic acid of the urine becomes converted into hippuric acid, whose alcaline compounds are of very easy solubility, thus—

Hippurate of Soda is soluble in two parts of water, at 60° Faht. whilst

Lithate of Soda (the staple of gouty concretions, or "chalk stones") is not soluble in less than 4000 parts of water, at the same temperature.

Biborate of soda is possessed of a considerable disintegrating power over urinary calculi.

The solvent properties of the alcaline carbonates is strongly illustrated by the effects of the alcaline waters of Vichy, in dispersing the chalk stones of gout.

It is anticipated that by combining the several medicinal agents alluded to the efficacy of each will be enhanced, and that, whilst an excess of carbonic acid gas will gratify the palate and invigorate the stomach, copious dilution will hasten the assimilation of the remedies, and contribute towards their final operation. Accordingly each of the bottles hereby submitted to your consideration, contains, of

PURIFIED Benzoate of Potash	of each 15 grains.
Biborate of Soda - - -	
Bicarbonate of Potash - -	half a drachm.
Distilled Water - - -	16 fluid ounces.

which solution was prepared under a pressure of $2\frac{1}{2}$ atmospheres of carbonic acid gas. The water will be found to retain a large proportion of its gas long after exposure to the air.

This "*Benzoin Water*" will be found to unite the properties of an antacid, of a diuretic, and of a tonic. It will be found useful in an irritable state of the

mucous membranes, whether manifesting itself in dyspepsia, or in chronic bronchitis; in all cases where there is a disposition to the formation of earthy deposits, in whatever part of the human frame—and particularly where such formations are the result of an excessive generation of lithic acid in the system.—(Gout and Lithiasis.)

Charter of the Royal College of Veterinary Surgeons.

Our friends need no longer call themselves *Veterinarians*. They are now a profession, and have all the trappings of ourselves. Victoria has done this for them sponte suâ. The *Times* informs us:—

Her most gracious Majesty the Queen has been pleased to grant to Thomas Turner, W. J. Goodwin. Thomas Mayer, William Jewell, William Dick, Charles Spooner, and James Beart Simonds, and those who now hold certificates of qualification from the Veterinary College of London, or the Veterinary College of Edinburgh, a Royal Charter of Incorporation, that they may be henceforth one body politic and corporate, by the name and title of the Royal College of Veterinary Surgeons. By this charter the veterinary art is recognised as a profession, and the members of this college are solely and exclusively of all other persons deemed members of the same, and distinguished by the name of Veterinary Surgeons. The regulation of the affairs of the college is vested in a council consisting of a president, six vice-presidents, and twenty-four members, all of whom are to be elected by the members at large. The council have the power of making by-laws, &c. and electing examiners to examine those who now are, or hereafter may become, students of the Royal Veterinary College of London, or the Veterinary College of Edinburgh.

Observations on the Trees and Shrubs proper for our proposed National Cemeteries. By R. Dickson, M.D.

Dr. Dickson's object in this paper is to point out the kind of trees and shrubs which should be excluded from cemeteries. Those trees which are known to diminish, instead of increase the amount of oxygen, are no fit portion of the vegetation of cemeteries; strange to say, however, these have been held to be, almost by prescriptive right, the appropriate occupants of the spots set apart for the dead. Evergreens generally are allowable, but all containing volatile oils, or volatile constituents, which change into resin by the absorption of oxygen, are very unfit.

After excluding the coniferous plants above enumerated, there will still be enough of perennial-leaved plants left to maintain an appearance of freshness and life throughout winter, the cherry-laurel (cerasus lauro-cerasus), the Portugal laurel (cerasus lusitanica), holly, ilex aquifolium, and above all, the arbutus unedo, and arbutus andrachne. Where walls surround the cemetery, the mespilus pyracantha, and other shrubs might be advantageously trained against them. Among deciduous plants, the poplars, especially the populus balsamifera, should be excluded. Along the sides of large cemeteries the ash might be planted, as the ornus Europœa, or flowering ash. One of the most appropriate would be the common lilac (syringa vulgaris), the leaves of which, according to Dr. Daubeny, raise the proportion of oxygen, in a jar filled with common air, to 29 or 30 per cent, and by introducing several plants into the same jar in pretty quick succession, even raise the proportion from 21 (the ordinary amount) to 39 per cent. In conformity with this, Dr. Dickson would exclude the cypress, yew, cedar, and arbor vitæ. One result of their banishment would be, that a more cheerful

aspect would appertain to the spots where the remains of our departed friends repose.—*Provincial Medical Journal*, March 2, 1844.

SIR HENRY HALFORD.

At the mature age of 78, and capable of exercising his profession with vigour, till a year ago, died Sir Henry Halford, the most eminent Physician in England—if the most extensive practice among the highest ranks in life, be any criterion of eminence. Contemporary with Baillie, the two stars of the medical horizon shone with nearly equal lustre; but with different kinds of light. Dr. Baillie was sought for his real knowledge of MORBID ANATOMY, and his supposed knowledge of pathology—two things as different as cause and effect. His great competitor preferred no claim to deep science in either anatomy, physiology, or pathology; but he had a quick apprehension, an elegant address, a ready explanation for every phenomenon, a facile prescription for every symptom—in one word, he had TACT, of a very superior kind, which counterbalanced, and more than counterbalanced, all the drudgery of the dead-house, through which Dr. Baillie had waded.

Then again, his polished manners, his classical education, and his double-refined powers of flattery, gave him infinite advantage over his plain, homely, and unpolished rival, among the Royalty and the Aristocracy of the Kingdom, male and female. Dr. Baillie was summoned in dangerous cases, through fear, rather than favour; but Sir Henry was generally there long before the disease came to that pass, and consequently had the cream of the jest, while the pathologist had merely the honour of taking precedence of the undertaker.

Sir Henry's career lasted half a century, while that of Baillie ran only about 25 years. His figure was slight and elastic, his countenance animated and cheering, his activity of mind and body remarkable, and he had the art of inspiring hope in the breast of the expiring sufferer.

It was said that he prescribed chiefly for *symptoms;* but we know so little of the essential nature of diseases, that nine-tenths of our practice are, or ought to be, on this principle. How do we recognize maladies but by their symptoms; and have we any right to despise them in the treatment? It is to the *symptoms* of a complaint that the patient constantly refers—it is from these that he suffers—it is for them that he solicits the aid of the physician. It is therefore the duty as well as the interest of the physician to endeavour to alleviate symptoms, whatever else he may do in speculation on the nature and seat of the malady.

It appears that Sir Henry died of one of those affections on which he had written—NEURALGIA. Of late years, his advanced age, his separation from Court, the death of most of his old patients, and the pressure of a redundant doctorate, curtailed greatly the range of his practice; but it is probable that he realized more money by his profession than did any physician since the days of Hippocrates.

Quiescat in pace!

Errata in the Article " Dr. Gavin on Feigned Diseases," in No. 79, Jan. 1844. Medico-Chirurgical Review.

Page 72—3d line from top, for "*there* were six lives lost," read " here were six lives," &c.—Page 75—10th line from top, for " evening rounds of his *side*," read " evening rounds of his sick."—Page 79—17th line from top, for " the open *and* half open eyes," read " open or half open."—Page 79—26th line from top, for " frown or *congestion* of the brows," read " frown or corrugation."—Page 83—24th line from top, for " what was the motive that caused Nicholson to murder Mr. and Mrs. *Brown*," read " to murder Mr. and Mrs. Bonar."

EXTRA-LIMITES.

INDIAN MEDICAL SERVICE.

To the Editor of the Medico-Chirurgical Review.

"If reward or emolument be the portion of a man borne so many years on the muster-roll, rather than of a character distinguished by activity, diligence, and discernment, the purpose of bounty is mistaken."—*Robert Jackson.*

Sir,—Since the days of the great American sea-serpent, which like many of the American speeches, writings, and repudiation "new ways to pay old debts," had neither length nor breadth, substance nor shadow; nothing so voluminous yet volatile, so bulky yet impalpable, has appeared on this side of the Atlantic and Indian Ocean, as your huge "Littlego"—of a letter from Bombay, dated "India, 20th August, 1843."

To meddle with this nobody of octocental humanity, this multitudinous nullity, this aggregate singularity, this polyandrian negation, would be like embracing a cloud, fencing with a water-spout, cudgelling with a hay-stack, or playing at singlestick with a feather-bed, ay, one stuffed with the down of Paddy-birds—an allusion which that writer will probably comprehend in the principle that birds of a feather, &c. There is no such a thing as impinging on such a nondescript. Strike as you may, all is hollow and defunct. There is no saliency, no elasticity of vitality. It has no sensible qualities, no voice, no smell. It is, and no mistake,—

"Sans teeth, sans eyes, sans taste, sans everything."

Strike high or low at it, there is no resiliency, no rebound. The inert mass, like the Indian Medical Boards, has neither body nor soul. It is without head or tail, or fact or argument, above the attention or invention of a camp-follower. Its horizon is limited to the nearest hedge, to the margin of Colaba Island, the surf at Madras, or the ditch of Fort William. But this will not do in the 19th Century. A mere gastric-juice, or rather bread-and-butter argument, is utterly unworthy of a professional and scientific body of men. We do not dislike bread-and butter in their proper place, but we detest the smell of them when it flavours *esprit de corps*. It is indeed distressing to see a great flatulent fellow looming upon you as if 800 men were rolled into one, and able to articulate no other war-cry but *bread-and-butter!* Again, I say, this will not do in the 19th century. It has "an ancient and fish-like smell," that smacks of the olden time, when a voyage to India and back again took a twelvemonth. I would, therefore, recommend to your uneasy correspondent, to inform himself as to the working of MEDICAL Boards in India; and, secondly, to inform himself as to the best mode of administering the Medical Department of Armies. Had he thus qualified himself for the discussion of this matter, he would not have fallen into the preposterous platitude of assertion, that "they (the Boards) have never been convicted of inefficiency." To prove a negative is never a very agreeable operation. Obstructiveness, small cavilling jealousy, and dog-in-the-manger aptitude to snarl without the power to bite, these be the jewels that shine in the Ethiop's ear of Medical Boards.

Let me be believed, that I would not pass over argument had I found it. I have met not a scintilla of it in the letter I am noticing. *Seniores priores* is its principle. Fat things for dull age, and nothing for young merit, is its rule.

Optat Ephippia bis piger.

But heaven save the mark—live the Medical Board for ever—since, oh!

mighty discovery—"Boards have been found *most efficient* (!!!) in the management of their affairs; for there is a Government Council Board, a Revenue Board, a Military Board, a Clothing Board, &c." This is a clincher in Fluellen's style. "Look you—there is a river in Macedon, and a river in Monmouth, and salmons in both." Alas! for this lob-sided analogy, which is, in fact, no analogy at all. The members of all the Boards he alludes to, save the medical, are selective. In not one of them is a member such by seniority, nor can any servant claim membership by right of seniority. The Government nominates members of Council, and members of the Board of Revenue, &c. Fancy a Supreme Council of the State, where not merit, not high character, not generous zeal, not high-mindedness, not comprehensive ability, and talent, and reputation, but *seniority* alone gave the claim to nomination! Does not the very idea sound absurd and inconsequential? It is not a bit more absurd and inconsequential than the seniority principle alone as the controlling power in a body of eight hundred Army Surgeons.

Finally, let me advise your Correspondent never to attribute motives, more especially when his natural bias blunders only on bad ones. Let him meet the facts of officers and gentlemen with facts. *Au reste*, I would not do such a discredit to Mr. Annesley and Mr. Martin as to attempt a defence of their honoured names against such a Triton of the minnows as this $\frac{1}{800}$th fraction of humanity. When a bit of steel could speak, it said to the pugnacious reptile as it crept away with bleeding tongue—"Viper, thou gnawest at a file."

ANOTHER OF THE EIGHT HUNDRED.

BIBLIOGRAPHICAL RECORD.

1. Address delivered before the American Society of Dental Surgeons, &c. By CHAPMAN A. HARRIS, M.D. Baltimore, 1843.

2. The American Journal and Library of Dental Science. Published under the auspices of the American Society of Dental Surgeons, &c. No. 1, Vol. IV. New-York, 1843. Mr. C. Ash, London Agent.
☞ *In exchange.*

3. Natural History, Pathology, and Treatment of the Epidemic Fever at present prevailing at Edinburgh and other Towns, illustrated by Cases and Dissections. By J R. CORMACK, M.D. Churchill, London, 1843. Octavo, pp. 182.

4. A Supplementary Report on the Practice of Interment in Towns, &c. By EDWARD CHADWICK, Esq. Presented to both Houses of Parliament, 1843.

5. The Cyclopædia of Anatomy and Physiology. Edited by ROBERT B. TODD, M D. F.R.S. Part XXV. London, Sherwood and Co. 1844.

6. The Phrenological Journal, &c. No. XXV. New series, Jan. 1844.

7. The Retrospect of Practical Medicine and Surgery. By W. BRAITHWAITE, Esq. of Leeds. Vol. VIII. July—Dec. 1843.

8. An Introduction to Practical Organic Chemistry, with References to the Works of Davy, Brande, Liebig, &c. Small 8vo, pp. 90. Churchill, London, 1844.

9. The Creation: illustrated by six Engravings on Steel; exhibiting the progressive Advance of the Creation through the Six Days, in a series of Letters from a Father to a Son. By W. G RHIND. London, S. Bagster and Son, 1844. Pp. 400.
☞ *A pious and useful present.*

10. The Anatomy, Physiology, and Pathology of the Teeth, &c. &c. By PAUL B.

GODDARD, M.D. and JOSEPH E. PARKER, Dentist. Large Quarto, with Plates. Philadelphia. 1844.

11. Essay on the Physiognomy of Serpents. By H. SCHLEGEL, Doctor of Philosophy, &c. Translated from the German by THOMAS STEWART TRAIL, M.D. &c. &c. 8vo, pp. 254, with Plates. Maclaghlan & Co. Edinburgh, 1844.

12. A Letter to the Governors of the Brighton Infirmary, &c. By a Medical Practitioner. Brighton. King, Bookseller. 1843.

13. The Medical Examiner. Philadelphia. September to the end of December, 1843.

☞ *In Exchange.*

14. Glossology; or the Additional Means of Diagnosis of Disease by the indications and appearances of the Tongue. By BENJ. RIDGE, M.D. &c. Octavo, pp. 84, with Plates. Churchill, London, 1844.

15. Diseases of Lungs from Mechanical Causes, &c. By CALVERT HOLLAND, M.D. Physician to the Sheffield General Infirmary, &c. Octavo, pp. 100. Churchill, 1844.

16. On the Nature and Treatment of Tic Douloureux, Sciatica, &c. By HENRY HUNT, M.D. Octavo, pp. 191. Churchill, 1844.

17. Report of the Commissioners appointed to take the Census of Ireland for the year 1841. Presented to both Houses of Parliament. Folio, upwards of 700 pages, with numerous Tables, &c. Dublin, 1843.

☞ *This valuable compilation, we believe by Mr. Wilde, will be taken due notice of.*

18. Observations on the Proximate Cause of Insanity. By JAMES SHEPPARD, M.R. C.S. Duodecimo, pp. 104. Longman & Co. 1844.

19. Transactions of the Medical and Physical Society of Bombay. No. 5, for 1842.

20. The New-York Journal of Medicine and the Collateral Sciences. Edited by SAMUEL FORRY, M.D. Jan. 1844.

21. Anatomical Manipulation; or the Methods of pursuing Practical Investigations, &c. By ALFRED TULK, M.R.C.S. & ARTHUR HENFREY, A.L.S. with Illustrations. Small octavo, pp. 413. J. Van Voorst, 1844.

22. Lectures on the Theory and Practice of Midwifery, delivered in the Theatre of St. George's Hospital. By ROBERT LEE, M.D. Fellow of the Royal College of Physicians, &c. Octavo, pp. 558. Churchill, 1844.

23. The Medical Student's Guide and Almanac for 1844, containing the latest Regulations of all the Licensing Bodies, &c. 8vo, pp. 180. Renshaw, London—Fanning and Co. Dublin. Price 2s. 6d.

24. Elements of Physiology, for the Use of Students, &c. By RUDOLPH WAGNER, M.D. Translated by ROBT. WILLIS, M.D. Part 3, Sensation and Motion. Sherwood and Co. 1844. Price 10s.

25. Thoughts on Physical Education, &c. By CHAS. CALDWELL, M.D. Second Edition. Edin. 1844.

26. The Medical Examiner. Edited by ROBERT M. HUSTON, M.D. Philadelphia. Vol. VIII. Nos. 1 and 2. 1844.

27. Scrofula:—its Nature, Causes and Treatment, &c. By W. TYLER SMITH, M.B. 8vo, pp. 172. Churchill—London, March, 1844.

28. The Principal Offices of the Brain and other Centres. By JOSEPH SWAN. Pp. 31. Longmans, 1844.

29. Sketches from the Case-book, to illustrate the Influence of the Mind on the Body, with the Treatment of some important Brain and Nervous Disturbances. By R. FLETCHER, Esq. Surgeon to the Gloucester General Hospital, &c. 8vo, pp. 389.

30. Medico-Chirurgical Notes and Illustrations. By R FLETCHER, Esq.

31. Public Health: An Oration delivered on the Seventeeth Anniversary of the London Medical Society. By LEONARD STEWART, M.D. Octavo, pp. 19. Longman and Co. 1844.

32. Fifth Annual Report of the Registrar General of Births, Deaths, and Marriages in England. Quarto, 1843.

33. A complete condensed Practical Treatise on Ophthalmic Medicine. By EDWARD OCTAVIUS HOCKEN, M.D. &c. Part 1. pp. 108. Price 3s. Highley, 1844.

34. Practical Manual on the Diseases of the Heart and Great Vessels—a work intended to facilitate and extend the study of these diseases. By F. A. ARAN, Interne of the first class of the Hôtel Dieu, &c. &c. Translated from the French by W. A. HARRIS, M.D. Philadelphia, 1843.

☞ *This is an excellent epitome of a large and important class of diseases, especially as to diagnosis.*

35. Minor Surgery; or Hints on the every-day Duties of the Surgeon. By Hy. H. SMITH, M.D. Lecturer on Minor Surgery, &c. Octavo. Philadelphia, 1843. Barrington and Co.

36. On Regimen and Longevity, comprising Materia Alimentaria, National Dietetic Usages, &c. By JOHN BELL, M.D. Lecturer on Materia Medica, &c. 8vo. pp. 420. Haswell and Johnson, Philadelphia, 1842.

37. Practical Medicine; illustrated by Cases of the most important Diseases. By JOHN M. GALT, M.D. Octavo, pp. 328. Philadelphia, 1843.

38. Supplementary Report of the Sanatary Condition of the Labouring Population of Great Britain, as to the practice of Interments in Towns. By EDWIN CHADWICK, Esq. Barrister at Law. 8vo. 1843.

39. Two Essays on the Diseases of the Spine. By R. A. STRAFFORD, Fellow of the Royal College of Surgeons. 8vo. pp. 92. Longman and Co. 1844.

40. On the Conical Cornea. By JAMES H. PICKFORD, M.D. M.R.I.A. 8vo. pp. 35. With Plates. Dublin, 1844.

41. Der Neue Wasserfreund, &c. Three Numbers, 1843. Von Dr. SCHMITZ, Marienberg, near Boppard, on the Rhine.

42. Illustrations of the Theory and Practice of Ventillation, with Remarks on Warming, Exclusive Lighting, and the Communication of Sound. By DAVID BOSWELL REID, M.D. F.R.S. &c. Octavo, pp. 451. Longman and Co. March, 1844.

43. Cases of Dropsical Ovaria removed by the Large Abdominal Section. By D. HENRY WALNE, Surgeon. 8vo. pp. 66. Longman and Co. 1844.

44. The Western Journal of Medicine and Surgery. Edited by Drs. DRAKE, VANDELE and COLESCOTT. Louisville, Kentucky.

45. General Report of the Royal Hospitals of Bridewell and Bethlem, and of the House of Occupation, for the year ending Dec. 1843. Octavo, London, 1844.

46. Geology: Introductory, Descriptive, and Practical. By DAVID THOMAS ANSTED, M.A. F.R.S. &c. Professor of Geology, King's College, London. Part I. price 5s. Van Voorst, Feb. 1844.

☞ *This promises to be a most valuable and entertaining work.*

47. A History of British Fossil Mammalia and Birds. By RICHARD OWEN, F.R.S. Conservator of the Hunterian Museum. Part I. price 2s. 6d. Van Voorst, Feb. 1844.

☞ *The name of the Author is a sufficient guarantee for the value of the work.*

48. Medicines, their Uses and Mode of Administration; including a complete Conspectus of three British Pharmacopœias, &c. By J. MOORE NELIGAN, M D. Physician to Jervis Street Hospital, &c. 8vo, pp. 432. Fannin and Co. Dublin, 1844.

49. The Dublin Journal of Medical Science. No. 73. March, 1844.

50. An Essay on the Tongue, its Functional Derangements of the Stomach and Bowels, &c. By ED. WILLIAMS, M.B. Cantab. Pp. 119. Simpkin and Marshall. March, 1844.

51. Practical Observations on the Prevention, Causes, and Treatment of Curvatures of the Spine, &c. By SAMUEL HARE, Surgeon. Second edition. Churchill, April, 1844.